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No. 4.

ON THE JAPANESE GEOMETRIDAE OF THE AIGNER COLLECTION.

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THE Geometridae of the extremely rich M. Aigner collection of Japanese Lepidoptera, recently acquired by the Tring Museum, have been placed in my hands for working out, and include so much of interest that it has been found desirable to catalogue them very completely, and to publish this catalogue together with some notes on variation, taxonomy and synonymy.

As there is not, so far as I know, very much phenological information yet published regarding the Japanese Geometridae, I have given the dates of capture in considerable detail and have frequently commented upon the modifications in the later broods. It might, however, be made a generalisation that the second (and third ?) generations differ chiefly from the first emergences in their smaller size. It is to be added that the collecting on Takao-San was not continuous, and several of the species may really show a succession of emergences throughout the summer months, including August, when the locality was not visited.

Takao-San, which is about 60 km. west of Tokyo, must be extremely rich in species. Of the 295 species of Geometridae sent by Mr. Aigner, at least 226 occur in that locality; with the addition of the winter species and others that were missed, and a probable further addition of many *Eupithecia* which are rarely seen except through breeding, it may be safely said that the number would surpass the total for the British Isles.

SUBFAM. OENOCHROMINAE.

1. *Alsophila tenuis* (Butl.) (1879).

Tokyo and vicinity, April 1925, 16 ♂♂; 30 March 1926, 1 ♂.

The series, mostly not in very fresh condition, shows some variation in size and in the degree of separation of the lines, but it cannot be called striking. The corrected synonymy of this species and its nearest ally, *punctigera* Prout (1915), is given on p. 414 of vol. iv of Scitz.

2. *Naxa (Psilonaxa) seriaria* (Motch.) (1866).

Asamayama, July 1926, 1 ♂; Takao-San, 7 July 1926, 1 ♀.

SUBFAM. HEMITHEINAE.

3. *Pingasa aigneri* sp.n.

♂, 49 mm. Head and body concolorous with wings, face with a black band above. Palpus with terminal joint slightly longer than in the ♂♂ of the other Japanese species. Genitalia with the arms of the harpe long and slender, the dorsal (not, as in *pseudoterpnaria* Guen., the ventral) the shorter, simple, rather blunt, the ventral only broadening a little at its tip, forming a small triangular plate and a quite rudimentary prong (totally unlike the strong thorn of *pseudoterpnaria*). Wings white, strongly irrorated and clouded with a light olivaceous drab-grey; cell-marks about as in *alba brunnescens* or slightly narrower; postmedian line black, fine and sharp, the lunules not so deep as in *pseudoterpnaria*, the teeth fairly sharp but without the black dots at their tips; antemedian with the posterior prong elongate. Underside much as in *pseudoterpnaria*, but without the strong proximal cloud of forewing.

Takao-San, 18 June 1925, 1 ♂.

4. *Pingasa alba brunnescens* Prout (1913).

Takao-San, 9 June 1926, 1 ♂, 1 ♀.

5. *Terpna superans* (Butl.) (1878).

Nikko, August 1924, 1 ♀. Takao-San, 18 June 1925, 1 ♂; 20 September 1925, 1 ♂; 7 July 1926, 3 ♂♂.

6. *Dindica virescens* (Butl.) (1878).

Nikko, 26 June 1925, 1 ♂. Takao-San, 21 May 1925, 5 ♂♂; 18 June 1925, 1 ♀; 25 June 1925, 1 ♂; 5 June 1926, 2 ♂♂; 9 June 1926, 1 ♀.

Apparently somewhat local or sporadic in its occurrence; among the moderately extensive Japanese material previously received at the Tring Museum only one specimen is found, merely labelled "Japan."

7. *Agathia carissima* Butl. (1878).

Nikko, June 1925, 1 ♂. Takao-San, 14 July 1925, 1 ♂; 5 June 1926, 1 ♂.

8. *Agathia curvifiniens* Prout (1917).

Takao-San, 21 May 1925, 4 ♂♂; 25 June 1925, 1 ♂; 9 June 1926, 1 ♂, 1 ♀. Tokyo, 16-31 May 1926, 1 ♀.

The originals of this species were from Ningpo, Corea and Kiushiu, so that the present record extends its range. In addition to the distinctions from *carissima* noted in the type description, *curvifiniens* differs in having the hindtibia of the ♂ dilated, with hair-pencil. The cell-dot of the hindwing is wanting in one or two examples, thus not quite a constant distinction; that of the forewing, on the other hand, is always conspicuous, placed on, or immediately outside of, the central band.

9. *Aracima muscosa* Butl. (1878).

Takao-San, 1 ♀, 7 July 1926.

10. **Tanaorhinus reciprocata confuciaria** (Walk.) (1862).

Nikko, October 1925, 1 ♂. Takao-San, 18 June 1925, 1 ♂, 1 ♀; 25 June 1925, 1 ♂; 29 September 1925, 1 ♂; 9 June 1926, 1 ♂; 7 July 1926, 5 ♂♂ Tamagawa, W. of Tokyo, 25 June 1926, 1 ♂; Tokyo, June 1925, 2 ♂♂; June 1926, 1 ♂.

The second-brood specimens are not markedly smaller than those of the first brood.

11. **Tanaorhinus vittata prasinus** Butl. (1879).

Takao-San, 5 June 1926, 2 ♂♂; 7 July 1926, 1 ♂; 15 September 1926, 1 ♂; 20 September 1926, 1 ♂.

Both the second-brood specimens are smaller, the later one especially small and dull.

12. **Hipparchus dieckmanni** (Graes.) (1889).

Nikko, November 1925, 1 ♂, 1 ♀. Takao-San, 14 June 1925, 1 ♂; 18 June 1925, 2 ♂♂; 9 June 1926, 1 ♂, 1 ♀; 7 July 1926, 1 ♂. Tamagawa, 25 June 1926, 1 ♂.

The Nikko specimens are small, no doubt a second brood.

The figure of this species in Seitz (*Macrolep.* iv, t. 1h) is not recognizable and looks as though it had been taken from a somewhat faded *Hemistola dijuncta* (Walk.); the specimen figured as *sponsaria* is probably a large ample-winged *dieckmanni*, of which species the Japanese forms not seldom have the white costal spots somewhat reduced. It should be added that I was also (following the British Museum collection) guilty of a misidentification of *sponsaria* Brem.; the species which I called by that name (*tom. cit.*, p. 17) has since been named *ussuriensis* Sauber (1915) = *herbeus* Kardakoff (1928). For the true *sponsaria*, see No. 14 (*infra*).

13. **Hipparchus valida** (Feld.) (1875).

Takao-San, 25 June 1925, 3 ♂♂. Tokyo, June 1925, 1 ♂; June 1926, 1 ♂.

14. **Hipparchus sponsaria** (Brem.) (1864).

Takao-San, 14 June 1925, 3 ♂♂.

Bremer's poor figure and description clearly point to the species which was subsequently named *mandarinaria* Leeoh (1897) and is recognizably described and figured under that name in Seitz (*Macrolep.* iv, 18, t. 1i). A crude figure, with antemedian line obsolete, is also supplied by Matsumura (*Thous. Ins. Jap.*, supp. ii, t. xxix, f. 10) under the misidentification of "*Megalochlora glaucaria* Brem. ♀." Compare the note under No. 12 (*supra*).

15. **Hipparchus glaucaria** (Ménétr.) (1859).

Tokyo, 25 June 1925, 1 ♂; June 1925, 1 ♀.

Both are extremely discoloured, but recognizable.

16. **Hipparchus vallata** (Butl.) (1878).

Takao-San, 21 May–18 June 1925 and 5–9 June 1926, 18 ♂♂, 4 ♀♀; 15 September 1925, 1 ♂.

The September specimen is considerably smaller, manifestly representing a second generation; otherwise the variation is negligible.

17. **Comibaena procumbaria** (Pryer) (1877).

Takao-San, 14 May 1925, 2 ♂♂; 25 June 1925, 2 ♂♂; 15 September 1925, 1 ♂; 20 September 1925, 1 ♂; 7 July 1926, 2 ♂♂. Hachijoshima (Fatsizio 1.), 23 July 1926, 1 ♂.

The Fatsizio and the two September specimens are considerably smaller than the others. A similar small form occurs at Kanshirei, Formosa, in April and May. In all the nine specimens of the Aigner collection, as well as in the Formosan, SC¹ of the forewing is stalked and SC² arises well before SC⁵.

18. **Comibaena amoenaria** (Oberth.) (1880).

Nikko, October 1925, 1 ♀.

19. **Comibaena delicatior** (Warr.) (1897).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 1 ♂; 18 June 1925, 5 ♂♂; 25 June 1925, 1 ♂; 15 September 1925, 2 ♂♂, 1 ♀; 5 June 1926, 1 ♀; 14 July 1926, 1 ♂. Tokyo, 16-31 May 1926, 1 ♂.

Variable in size and somewhat in the extent of the apical patch of the hindwing and the clearness or suffusedness of its red part, but never approaching at all closely *nigromacularia* Leech (1897) = *eurynomaria* Oberth. (*Et. Lép. Comp.* xii. 109, f. 3274, 1916) from W. China. It may perhaps be a race of the last-named, but certainly not a synonym as I earlier assumed, in the absence of adequate material and probably influenced by Leech's union of them. Oberthür (*loc. cit.*) cleared up the confusion and beautifully figured the two forms in question, 3273 representing *delicatior*. Notwithstanding his professed inability to recognize written descriptions, he correctly interpreted Leech's by the "black" apical patch of the hindwing, but transferred the name *nigromacularia* to the Japanese *delicatior* (which he differentiates by its red apical patch) because that was the first figured form in Seitz!

20. **Comibaena argentataria** (Leech) (1897).

Takao-San, 7 July 1926, 6 ♂♂, 1 ♀; 14 July 1926, 1 ♂.

21. **Culpinia diffusa** (Walk.) (1861).

Tokyo, 16-31 May 1926, 1 ♂.

22. **Gelasma albistrigata** Warr. (1895).

Takao-San, 14 June 1925, 1 ♂; 18 June 1925, 1 ♀; 5 June 1926, 1 ♀; 9 June 1926, 1 ♂. Tokyo, 1-15 June 1926, 1 ♂.

23. **Gelasma ambigua** (Butl.) (1878).

Sado I., 1-15 August 1925, 1 ♀.

The specimen is rather large and is badly worn, but its lighter red face, more wavy lines, white cell-spot of hindwing and more acute, sinuous-bordered forewing separate it from *albistrigata* and refer it here.

24. *Gelasma immunis* sp.n.

♂, 26 mm. Face black. Palpus rather short, blackish above, pale beneath. Vertex white; occiput narrowly green. Antennal pectinations short, the longest scarcely 2. Thorax and abdomen concolorous with wings. Hindtibial pencil moderate, process short; hindtarsus short.

Forewing not very dark, of the usual dirty yellowish-green of old or captured specimens of the group; costal edge narrowly buff, not dark-spotted; lines whitish, indistinct; antemedian at $\frac{1}{2}$, somewhat sinuous; postmedian at about $\frac{2}{3}$, slightly sinuous, not appreciably dentate, obsolescent at costa, slightly incurved at fold, reaching hindmargin at beyond $\frac{2}{3}$; termen and fringe concolorous or slightly paler. —Hindwing with angle at R^3 very blunt, a very faint concavity between this and R^1 ; concolorous with forewing; postmedian line continued, sinuous, becoming more proximal. —Underside paler, unmarked.

Takao-San, 7 July 1926, 1 ♂.

Readily distinguishable by its small size and short pectinations; recalls a small *Hemithea*.

25. *Gelasma illiturata* (Walk.) (1862).

Takao-San, 25 June 1925, 7 ♂♂; 7 July 1926, 23 ♂♂, 4 ♀♀.

Seven of the smallest specimens (25 June, 4 ♂♂; 7 July, 1 ♂, 2 ♀♀) appear to have been rather paler, the teeth of the postmedian less deep, pectinations rather more erect, tail of hindwing perhaps rather shorter (sp. div. ?), but are all in poor condition.

26. *Gelasma protrusa* (Butl.) (1878).

Takao-San 25 June 1925 2 ♂♂ 1 ♀; 14 July 1925, 1 ♂; 20 September 1925, 2 ♀♀; 7 July 1926, 4 ♂♂, 2 ♀.

In this species, the second-brood specimens are only a little smaller than the others.

27. *Gelasma grandificaria* (Graes.) (1890).

Takao-San, 25 June 1925, 1 ♂; 7 July 1926, 1 ♂, 2 ♀.

28. *Hemithea aestivaria* (Hb.) (1789).

Takao-San, 18 June 1925, 2 ♂♂, 1 ♀; 25 June 1925, 1 ♂, 1 ♀; 7 July 1926, 2 ♀♀. Tokyo, 4 July 1925, 1 ♀. Also 1 ♂ without exact locality (Japanese Alps), July 1926.

29. *Hemithea* sp.

Takao-San, 18 June 1925, 1 ♂; 15 September 1925, 1 ♂.

Smaller than *aestivaria* and with other differences, but unfortunately not in a fit condition for describing.

30. *Hemithea marina* (Butl.) (1878).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 6 ♂♂; 18 June 1925, 1 ♂; 25 June 1925, 2 ♀♀; 5 June 1926, 1 ♂; 9 June 1926, 2 ♂♂, 1 ♀; 7 July 1926, 1 ♂. Sado I., 3-11 August 1926, 1 ♀.

Several of the specimens are very badly faded, but seem unquestionably

to belong here. One ♂ of 9 June is of a curiously grey green, and so is that of 5 June, the latter in addition much dwarfed.

31. **Hemithea anadema** sp.n.

♂, 23 mm. Closely like a small *marina*, but sufficiently distinct. Crown of head and antennal shaft dull purple, not white. Forewing with SC¹ connate with SC²⁻³ (from cell in *marina*), M¹ stalked with R³ (generally connate in *marina*) ; the buff costal edge only slightly dark-dotted ; lines very fine and weak, slightly dotted with cleaner white on the veins. Hindwing more rounded than in *marina*, the bend at R³ only noticeable with careful attention ; line faint.

Takao-San, 5 June 1926, 1 ♂.

On account of the shape, this species might be referred to (section ?) *Chlorissa*, near *C. obliterata* Walk. and its crests are only a little more developed than in that species. In any case it must be congeneric with *marina* and both are in a measure intergrades, as are also several species which have been discussed on other occasions.

32. **Hemithea amphitritaria** (Oberth.) (1879).

Takao-San, 21 May 1925, 1 ♂ (+ 2 ♂♂ ?) ; 14 June 1925, 2 ♀♀ ; 18 June 1925, 1 ♂ ; 25 June 1925, 1 ♀ ; 14 July 1925, 1 ♂.

I am uncertain how many species may be united under this name. The two best Ussuri ♂♂ before me (Vladivostok and district) show definite red dorsal ornamentation on only two abdominal segments (Oberthür says three) ; Aigner's, when good enough to show it, have it on four, and the crests perhaps a little better developed, and an Oiwake ♂ and smaller Chang Yang pair in coll. Brit. Mus. agree with them, while an Ussuri ♀ and a Hokkaido ♂ in the same collection, labelled *nigropunctata* Warr., scarcely differ from one Takao-San ♀ except in having blackish cell-dots. The two ♂♂ which are queried above are worn beyond recognition.

The species is clearly related to the two preceding, though larger, paler and with slenderer lines.

33. **Diplodesma ussuriaria** (Brem.) (1864).

Takao-San, 18 June 1925, 1 ♀ ; 14 July 1925, 1 ♀ ; 20 September 1925, 1 ♂ ; 7 July 1926, 1 ♂.

The September specimen is smaller than the others.

34. **Euchloris albocostaria** (Brem.) (1864).

Tokyo, 1 ♂, June 1925. Takao-San, 15 September 1925, 1 ♂ ; 7 July 1926, 2 ♂♂. Japanese Alps, July 1926, 1 ♂.

Except that the second-brood specimens are smaller, this is a very constant species.

35. **Hemistola dijuncta** (Walk.) (1861).

Takao-San, 18 June 1925, 2 ♂♂ ; 21 June 1925, 1 ♂.

36. **Hemistola veneta** (Butl.) (1879).

Takao-San, 14 July 1925, 1 ♂ ; 7 July 1926, 1 ♂.

37. *Iodis lactearia* (Linn.) (1758).

Takao-San, 14 June 1925, 1 ♂; 5 June 1926, 1 ♂; 7 July 1926, 1 ♂.
Hirayama, Nindo, 5 May 1926, 2 ♂♂.

38. *Iodis putata orientalis* Wehrli (1923).

Takao-San, 14 June 1925, 1 ♂; 5 June 1926, 1 ♂; 7 July 1926, 1 ♂.

Some of the Takao-San examples of this species and the preceding are so wasted as to be scarcely determinable without anatomical research, but in any case the occurrence of both in the locality is assured.

39. *Iodis praerupta* (Butl.) (1878).

Takao-San, 21 May 1925, 1 ♂. Hirayama, Nindo, 5 May 1926, 3 ♂♂.

40. *Iodis urosticta* sp.n.

♂, 20–24 mm.; ♀, 26 mm. Palpus with 3rd joint elongate, in ♀ about 1, in ♂ over $\frac{1}{2}$. Face green. Vertex white. Abdomen above green with white spots; beneath white.—Forewing with R^1 generally stalked, SC^1 well beyond it, anastomosing shortly (in the ♀ connected) with C ; greenish olive-grey, iridescent—especially in proximal and distal areas—with light gull-grey; markings as in *argentilineata* (Wileman, 1916); a white spot or dot on DC^3 posteriorly.—Hindwing with tail moderate; as forewing, the white terminal dot on R^3 enlarged. Underside whiter.

Tokyo, April 1926, 1 ♂, type. Takao-San, 20 September 1925, 1 ♂, 1 ♀. Japanese Alps, July 1926, 2 ♂♂.

None of the examples is perfect, nor are the few others which I have seen in different collections; but the smaller size, and especially the different position of SC^1 , as well as the locality, distinguish it readily from *argentilineata* Wileman.

41. *Iodis dentifascia* Warr. (1897).

Takao-San, 5 June 1926, 1 ♀; 7 July 1926, 3 ♀♀. Japanese Alps, July 1926, 1 ♂, 1 ♀.

42. *Comostola nympha* (Butl.) (1881).

Nikko, November 1925, 2 ♀♀. Sado I., 1–15 August 1925, 3 ♀♀. Takao-San, 21 May to 25 June 1925, 17 ♂♂; 15 September 1925, 1 ♂, 1 ♀; 9 June 1926, 2 ♂♂; 7 July 1926, 2 ♂♂; 14 July 1926, 1 ♂.

There is some little variation in the size of the cell-spots and in the extent of the red edging to the vein-spots. The September ♂ is small and vivid green and is almost exactly matched by one of 7 July; the other from the latter date is larger and worn, as is also that of 14 July, and it may well be that two generations overlap at that period, at least in favourable years.

SUBFAM. STERRHINAE.

43. *Dithecodes erasa* Warr. (1900).

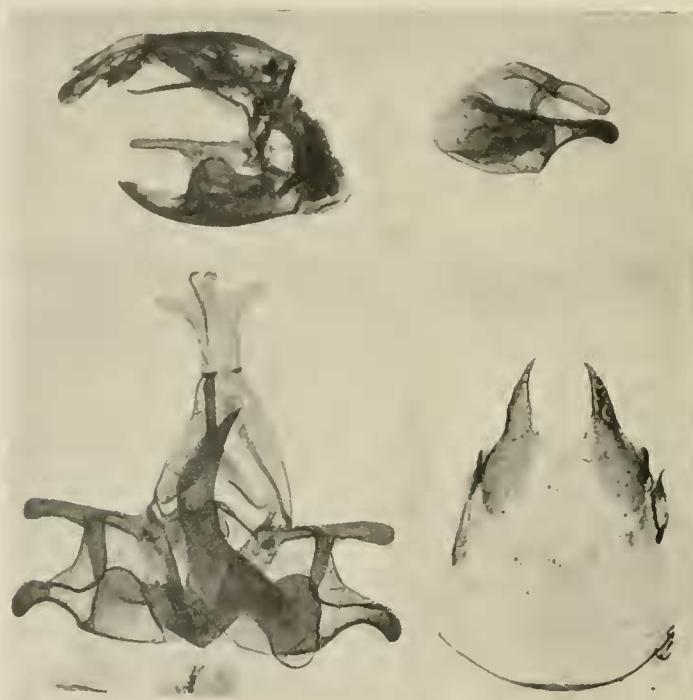
Takao-San, 18 June 1925, 1 ♂, 1 ♀.

A re-examination of the type of this rare species (Nov. ZOOL. vii. 102), with which these specimens agree in size, etc., shows traces—especially on the

underside—of the white cell-spots which are conspicuous in them. Hence I do not now think that *vacua* Swinh. (*Tr. Ent. Soc. Lond.* 1902, p. 671) can be treated as even an aberration, much less a species.

Pylargosceles gen.n.

External characters mostly as in *Scopula* sect. *Pylarge* (hindtibia of ♂ with 2, of ♀ with 4 spurs), but with the ♂ antenna bipectinate, with slender branches, one pair to each joint, bearing long branching cilia, the hindwing with SC² shortly



(or very shortly) stalked. Wing-pattern more as in *Tanaotrichia* or some *Rhodostrophia*. Genitalia (text-figs.) abundantly confirming its wide separation from *Scopula* and its approximate association with the *Rhodostrophia* section. Uncus long, bilobed. Gnathos developed. Valves short, divided. Transtilla present. No true "mappa and cerata"; instead a peculiar two-pointed body-plate at the posterior end of the 8th sternite, extending half across the segment, comparable to those of the *Rhodostrophia* group ("pseudo-mappa" of Burrows, *in litt.*).

Type of the genus: *Pylargosceles steganioides* (Butl.) = *Acidalia steganioides* Butl. (1878).

To this genus will belong also "*Ptychopoda*" *limbaria* Wileman (1915), which is probably a local race (Formosan) of *steganioides*.

44. *Pylargosceles steganoides* (Butl.) (1878).

Takao-San, 19 April 1925, 1 ♀. Tokyo, 15-31 May 1926, 1 ♂.

45. *Calothysanis amata recompta* subsp.n.

On an average smaller than *a. amata* Linn. (1758), the ground-colour clearer buff, chiefly on account of the reduction or entire suppression of the grey irroration, the pink line strong, generally broad, nearly always bright (approximating to Pl. xxxviiib of Ridgway), often without any blackish admixture, termen generally with extended pink suffusion which is rare in *a. amata*. The scobinate flanges of the "uncus" (Pieree, *Genit. Geom. Brit.* p. 36) are more heavily armed.

Japan, Corea and Ussuri, the type from Chabarovsk, Ussuri railway, 5 July 1911 (E. Borsow), in coll. Tring. Mus.

The discovery that *comptaria* Walk. is a distinct species, differing markedly in the ♂ genitalia, has explained the extreme variability of Japanese *Calothysanis* (= *Timandra*) which was assumed in Seitz (*Macrolep.* iv. 48) and has left the true eastern race of *amata* without a name. Although it remains moderately variable, it is almost always distinguishable from the European by its reduced size and cleaner, brighter line, that of *a. amata* generally favouring Pl. xxvii centre or row i of Ridgway. In the Aigner collection it is only represented by two examples :

Takao-San, 21 May 1925, 1 ♂; 7 July 1926, 1 ♂.

As both of these strongly favour the ab. *effusaria* Klem. (1894) in the abnormal broadening of the pink shade, it has not been thought desirable to make either of them the type of the race.

46. *Calothysanis comptaria* (Walk.) (1862).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 3 ♂♂; 18 June 1925, 4 ♂♂; 14 July 1925, 1 ♂; 15 September 1925, 1 ♂; 20 September 1925, 1 ♂, 2 ♀♀; 5 June 1926, 1 ♂, 1 ♀; 7 July 1926, 1 ♂. Tokyo, 4 ♀♀: June and July 1925, 1-15 May and 16-31 May 1926.

The dates point to two or three separate broods. Three out of the four specimens taken on 18 June are worn and all are of the size of the earlier specimens; those dated July and September 1925 are smaller and in good condition (that of 7 July 1926 very worn, probably a delayed specimen of the first brood) and the gap between their dates leaves ample time for another brood to feed up, although it is possible that we have here a protracted second generation. Even in the later emergences this species is well irrorated; the line is more vinaceous-rufous than pink, always mixed with black, not diffused distally, often thickened at apex; the postmedian line is usually distinct and is more sharply angled on the hindwing than in most *amata*; terminal line dull, without pink diffusion. Ueus much less blunt, its flanges quite differently shaped, branch of costa of valve much more proximal.

Range more extended than in *amata recompta*, reaching W. China. Walker's type was from "China," probably in the Shanghai district.

47. *Somatina indicataria* (Walk.) (1861).

Takao-San, 40 ♂♂, 3 ♀♀, one (a ♂) on 21 May, 1925 the majority from 14 June to 14 July. Tokyo, June 1925, 1 ♂. Kuma, Shikoku, 27 August 1925.

Variation very slight, the August specimen rather small.

48. **Problepsis superans** (Butl.) (1885).

“Japan” (without exact data), 1 ♂.

Lord Rothschild has besides only two specimens of this fine species, Yokohama, July and August (Dr. Fritze).

49. **Problepsis discophora** (Fixsen) (1887).

“*Problepsis phoebearia* Ersch.” Matsumura, *Thous. Ins. Jap.*, supp. ii, t. xxvii, f. 13 (1910) (err. det.).

Takao-San, 25 June 1925, 1 ♂; 14 July 1925, 1 ♂; 9 June 1926, 2 ♂♂; 7 July 1926, 2 ♂♂.

The specimens of 1926 are fine dark forms. The sinking of this species to the preceding is incorrect. Smaller; hindtarsus of ♂ relatively a little longer; retinaculum of ♂ without defined black spot posteriorly; both wings with ocellus less extreme, the black scaling in it not nearly so continuous (in *superans* on the forewing it encircles the entire centre except anteriorly), the outer subterminal spots generally developed.

50. **Scopula cineraria** (Leech) (1897).

Hachijoshima (Fatsizio I.), 23 July 1926, 2 ♂♂, 1 ♀.

51. **Scopula impersonata** (Walk.) (1861).

Tokyo, June 1925, 1 ♂.

The specimen belongs to the form *macescens* Butl. (1879), though slightly intermediate towards name-typical *impersonata*, which was described from China (Fu-chau), but occurs among f. *macescens* on Kinshin. I suspect the name-typical form to be a product of warmth.

52. **Scopula confusa** (Butl.) (1878).

Takao-San, 14 July 1925, 1 ♂.

53. **Scopula hanna** (Butl.) (1878).

Hachijoshima (Fatsizio I.), 23 July 1926, 1 ♀.

54. **Scopula nigropunctata subcandidata** (Walk.) (1862).

Hirayama, Nindo, 5 May 1926, 30 ♂♂. Takao-San, 2 May–14 July and 15–20 September, 73 ♂♂, 40 ♀♀.

The above series shows little variation; the few September specimens are on an average smaller, but not extreme. The following are somewhat more doubtfully placed:

Kuma, Shikoku, 27 August 1925, 1 ♀, small and apparently not very heavily dusted, but not very fresh.

Nikko, October 1925, 1 ♂; November 1925, 1 ♀. Both small and very weakly marked, possibly a third brood, but worn; perhaps an allied species.

55. **Scopula modicaria** (Leech) (1897).

Tokyo, 1–15 June 1926, 1 ♂. Takao-San, 15 September 1925, 1 ♀; 7 July 1926, 1 ♀.

56. **Scopula apicipunctata** (Christ.) (1881).

Takao-San, 14 June 1925, 1 ♂; 25 June 1925, 1 ♂, 1 ♀; 15 September 1925, 1 ♀; 9 June 1926, 1 ♀; 7 July 1926, 2 ♀♀.

The September example is small, as is also the case with the following species.

57. **Scopula superior** (Butl.) (1878).

Takao-San, 14 June 1925, 1 ♂; 15 September 1925, 1 ♂. Tokyo, June 1925, 1 ♀; 16-31 May 1926, 1 ♀.

58. **Scopula** sp.

Takao-San, 21 May 1925, 4 ♂♂, 1 ♀; 21 June 1925, 1 ♀; 14 July 1925, 1 ♀; 7 July 1926, 5 ♂♂.

Pass as a form (or forms) of *subpunctaria* H.-Sch. (1847) but probably—at least in part—wrongly. There seem to be two mixed, a larger and a smaller, among the Takao-San series, but nearly all are in poor condition, and in any case I do not care to deal with the group at present, as I believe Mr. A. M. Djakonov is making a thorough study of them, particularly as regards the Ussuri forms.

59. **Scopula superciliata** (Prout) (1913).

Takao-San, 14 June 1925, 2 ♂♂; 21 June 1925, 2 ♀♀; 15 September 1925, 1 ♀; 7 July 1926, 1 ♀.

The September specimen, much smaller than the rest, shows that this species, in common with most of the Japanese *Scopula*, produces at least a partial second brood.

60. **Scopula floslactata claudata** (Prout) (1913).

Takao-San, 21 May 1925, 5 ♂♂, 3 ♀♀; 5 June 1926, 2 ♀♀. Hirayama, Nindo, 5 May 1926, 1 ♀.

61. **Scopula ignobilis** (Warr.) (1901).

Takao-San, 14 June 1925, 3 ♂♂; 18 June 1925, 1 ♀; 25 June 1925, 1 ♂; 15 September 1925, 3 ♀♀; 20 September 1925, 1 ♂, 2 ♀♀; 5 June 1926, 1 ♂; 7 July 1926, 8 ♂♂, 3 ♀♀. Sado I., 3-11 August 1926, 1 ♂. Hachijoshima (Fatsizio I.), 23 July 1926, 1 ♀. Nikko, October 1926, 1 ♀.

In addition there is an anomalous-looking ♂ from Takao-San, 15 September 1925, with the ground-colour of *ignobilis* or slightly yellower, but with the hindwing appreciably more angled than in other examples (shaped as in *nigropunctata*), the cell-dots minute, the underside weakly marked, the median shade on the forewing scarcely oblique enough for *ignobilis* (almost touching the cell-dot), thus almost impossible for any form of *nigropunctata*. Probably a new species.

62. **Scopula personata** (Prout) (1913).

Hachijoshima (Fatsizio I.), 23 July 1926, 2 ♀♀.

63. **Sterrhia muricata minor** (Sterneck) (1927).

Takao-San, 15 September 1925, 1 ♀.

64. **Sterrha impexa** (Butl.) (1879).

Takao-San, 25 June 1925, 2 ♀♀; 7 July 1926, 1 ♂, 2 ♀♀; 15 September 1925, 1 ♂, 1 ♀.

Here again the second-brood specimens are considerably smaller.

65. **Sterrha foedata** (Butl.) (1879).

Tokyo, June 1925, 2 ♀♀.

66. **Sterrha nudaria infuscaria** (Leech) (1897).

Takao-San, 7 July 1926, 2 ♀♀.

67. **Sterrha invalida** (Butl.) (1879).

? Nikko, October 1926, 1 ♀. Takao-San, ? 21 May 1925, 1 ♂ (very worn); 14 June 1925, 1 ♂; 18 June 1925, 2 ♂♂, 1 ♀; 21 June 1925, 1 ♂; 25 June 1925, 1 ♂, 1 ♀; 14 July 1925, 1 ♀; 20 September 1925, 1 ♀; 5 June 1926, 3 ♂♂. Sado I., 1-15 August 1925, 2 ♀♀; 3-11 August 1926, 1 ♂. ? Hachijoshima (Fatsizio I.), 23 July 1926, 2 ♀♀.

Variable. The ♂ of 25 June is small, very worn, possibly a different species. The September ♀ is a nice dark example of ab. *lauta* Warr. (1901), and some others from Takao-San approach this form. The ♀ from Nikko is a curious aberration, rather brown and smooth-looking, the postmedian line apparently scarcely dotted on the veins (but rather worn). The Hachijoshima form is rather small, browner, heavily marked, possibly a separate species, but one Sado ♀ connects it with the more normal forms.

68. **Sterrha remissa** (Wileman) (1911).

Takao-San, 7 July 1926, 2 ♂♂, 2 ♀♀.

69. **Sterrha effusaria** (Christ.) (1881).

Takao-San, 25 June 1925, 1 ♀; 14 July 1925, 10 ♀♀; 7 July 1926, 2 ♂♂, 2 ♀♀. Japanese Alps, July 1926, 1 ♀.

70. **Sterrha trisetata** Prout (1922).

Tokyo, 9 July 1925, 1 ♀. Takao-San, 14 July, 15 and 20 September 1925, 1 ♀ on each date.

SUBFAM. LARENTIINAE.

71. **Xanthorhoë quadrifasiata ignobilis** (Butl.) (1881).

Nikko, October 1925, 2 ♀♀; November 1925, 2 ♀♀.

72. **Xanthorhoë saturata** (Guen.) (1858).

Takao-San, 20 September 1925, 1 ♀. Tokyo, 5-31 October 1925, 1 ♂; 20-30 November 1925, 1 ♂.

73. **Orthonama obstipata** (Fb.) (1794).

Tokyo, 15 September 1925, 1 ♂.

A fine sharply-banded aberration of this cosmopolitan species, which seems rather rare, though distributed, in Japan.

74. **Ortholitha propinguata niphonica** (Butl.) (1878).

Takao-San, 21 May–14 July, and again 15–20 September, 26 ♂♂, 16 ♀♀.

One ♂, 14 June 1925, is a striking aberration, with the median band of the forewing greatly narrowed, the postmedian line of the hindwing correspondingly displaced proximad.

75. **Colostygia grataria** (Leech) (1891).

Nikko, October 1925, 1 ♂.

76. **Coenotephria amelia** (Butl.) (1878).

Nikko, 16 June 1925, 4 ♂♂, 4 ♀♀. Takao-San, 14 April 1925, 3 ♂♂; 19 April 1925, 1 ♂, 3 ♀♀; 2 May 1926, 2 ♂♂, 3 ♀♀. Tokyo, April 1925, 11 ♂♂, 5 ♀♀. Hirayama, Nindo, 5 May 1926, 1 ♂, 1 ♀.

The series shows the usual range of variation.

This species is, I think, misplaced generically, but its actual affinities have not yet been worked out, though the remarkable, long curved spines with which it is beset near the base of the ♂ valve, together with a few other characters, suggest a probable association with *Larentia* (type *clavaria* Haw.).

77. **Coenotephria umbrifera** (Butl.) (1879).

Takao-San, 21 May 1925, 1 ♀.

78. **Coenotephria consanguinea** (Butl.) (1878).

Takao-San, 21 May 1925, 1 ♀.

The ostensible figure of this species in Matsumura (*Thous. Ins. Jap.*, supp. ii, t. xxvii, f. 26) represents *taczanowskiiaria* Oberth. (1880), which in Japan is chiefly northern and was not obtained by Aigner.

79. **Perizoma taeniata saxeae** (Wileman) (1911).

Nikko, October 1925, 1 ♀; November 1925, 1 ♀.

80. **Euphyia obscura obscura** (Butl.) (1878).

Takao-San, 21 May–14 July, 19 ♂♂, 20 ♀♀.

81. **Euphyia cineraria** (Butl.) (1878).

Takao-San, 5 June 1926, 2 ♂♂. Sado I., 1–15 August 1925, 1 ♀; 3–11 August 1926, 4 ♀♀.

82. **Euphyia unduliferaria unduliferaria** (Motseh.) (1860).

Asamayama, July 1926, 2 ♀♀.

The Japanese race *u. unduliferaria* is generally larger and more greyish than *u. albostrigaria* Brem. (1864) and shows several other small differences.

83. **Melanthisia procellata inquinata** (Butl.) (1878).

Nikko, October 1925, 1 ♀; November 1925, 2 ♂♂, 2 ♀♀. Takao-San, 14 April–20 September, 30 ♂♂, 19 ♀♀. Sado I., 3–11 August 1926, 1 ♀.

Variable as usual, but with a strong preponderance, in the Takao-San series, of ab. *infuscata* Prout and transitions (perhaps 70 per cent.).

84. *Ecliptopera mactata mactata* (Feld.) (1875).

Nikko, October, 1925, 1 ♂; November 1925, 7 ♂♂, 7 ♀♀. Takao-San, 21 May-14 July and again 15-20 September, 18 ♂♂, 5 ♀♀. Sado I., spring, 1 ♀; August, 2 ♂♂, 1 ♀.

85. *Ecliptopera decurrents excurrens* subsp.n.

Not quite so broad and dark as *d. decurrents* Moore (1888, Himalayas), forewing less suffused with whitish between cell and tornal patch, the dark element in the latter more extended, less intense, didymate line on middle of hindmargin less extremely oblique (in *d. decurrents* nearly parallel with antemedian).

Takao-San, 14 May-14 July and 15-20 September, 18 ♂♂, 7 ♀♀. Type in coll. Tring Mus.

This is the usual Japanese form, not heretofore differentiated. Together with it, though not on the same dates, occurred an enigmatical form which I have long had separated as a provisional species.

f. *insurgens* form.n. (? sp.n.). On an average slightly larger and longer-winged, termen of forewing generally slightly more bent in middle; forewing cinnamon-brown to snuff-brown rather than fuscous, subbasal line indistinct and curved, not straight, almost always only three white lines in the postmedian group (in *decurrents* almost always four, the second from the base, however, extremely slender, rarely distinct to costa), tornal brown shade still more uniform than in *d. excurrens*; hindwing and underside generally rather paler. As the genitalia are identical and most of the distinctions more or less inconstant, I still hesitate as to its status.

Takao-San, 19 April 1925, 1 ♂; 21 May 1925, 2 ♂♂; 21 June 1925, 1 ♂; 2 May 1926, 2 ♂♂. Near Tokyo, April 1925, 1 ♀. Also from Nikko, Yokohama, 1886 (Manley) and Nagasaki, in coll. Tring Mus. and from Shinano, Minomo and Kioto in coll. Joieey. From Yokohama, whence I have selected the type, I know this form only.

86. *Ecliptopera pryeri* (Butl.) (1881).

Nikko, October 1925, 1 ♀; November 1925, 3 ♂♂, 3 ♀♀.

This is a good species, not—as previously indicated—a synonym of *E. capitata* H.-Sch. It is rather closely similar to *fastigata* Püng. (1909), though with the postmedian line not quite so acutely bent.

87. *Ecliptopera umbrosaria* (Motsch.) (1860).

Nikko, 26 June 1925, 1 ♂; October 1925, 2 ♀♀; November 1925, 1 ♂, 1 ♀. Takao-San, 2 May-14 July and again 15-20 September, 73 ♂♂, 30 ♀♀. Tokyo, 14 April 1925, 1 ♀; 18 May 1925, 1 ♀; April 1926, 1 ♂; June 1926, 1 ♂. Haehijoshima (Fatsizio I.), 23 July 1926, 3 ♀♀.

Variable in size and colouring. There are clearly two broods, possibly even three; the specimens taken up to the middle of June are nearly always more mixed with white than the later ones, particularly on the hindwing; the later, darker specimens are on an average smaller. A few, including all the three from Haehijoshima, have a rather pronounced admixture of ochreous brown on either side of the median area of the forewing. A single ♂ (Tokyo,

April 1926) has the median area of the forewing cut with white behind M^2 , recalling the ab. *insulata* of *E. silacea* Schiff. Differences in the ♂ genitalia and abdominal tufts show *umbrosaria* to be a good species, not—as it was treated in Seitz (*Macrolep.* iv. 250)—a race of *silacea*.

88. ***Eustroma aerosa* (Butl.) (1878).**

“*Lygris testata* L. ♀” (!!) Matsumura, *Thous. Ins. Jap.*, supp. ii, t. xxix, f. 16 (1910) (err. det.).

Nikko, 1 ♀, 26 June 1925. Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 1 ♀; 18 June 1925, 3 ♂♂; 15 September 1925, 1 ♂, 1 ♀; 5 June 1926, 1 ♂.

89. ***Eustroma melancholica melancholica* (Butl.) (1878).**

Takao-San, 21 May 1925, 1 ♀; 15 September 1925, 7 ♂♂; 2 May 1926, 3 ♂♂.

90. ***Photoscotosia atrostrigata* (Brem.) (1864).**

Nikko, 26 June 1925, 1 ♂; October 1925, 3 ♂♂; November 1925, 1 ♂, 19 ♀♀.

Takao-San, 5 June 1926, 1 ♀, a form or mountain race (?), dark, with median area of forewing heavily marked, distal area sufficiently darkened to bring out sharply the posterior part of the pale subterminal line.

91. ***Callabraxas maculata* (Swinh.) (1894).**

Sado I., spring 1926, 1 ♀.

92. ***Calleulype compositata* (Guen.) (1858).**

Takao-San, 14 July 1925, 1 ♂.

93. ***Calleulype whitelyi* (Butl.) (1878).**

Takao-San, 9 June–7 July, 14 ♂♂, 9 ♀♀.

94. ***Gandaritis fixseni magnifica* (Prout) (1915)**

Nikko, October 1925, 3 ♂♂, 2 ♀♀; November 1925, 11 ♂♂, 2 ♀♀. Takao-San, 14 July 1925, 2 ♂♂. Tokyo, 4 July 1925, 1 ♀.

95. ***Lygris agnes agnes* (Butl.) (1878)**

Takao-San, 2 June–7 July, 22 ♂♂, 8 ♀♀.

96. ***Lygris ledereri* Brem. (1864).**

Nikko, October 1925, 1 ♀; November 1925, 7 ♂♂, 4 ♀♀. Takao-San, 18 June 1925, 1 ♂; 21 June 1925, 2 ♂♂, 1 ♀; 14 July 1925, 1 ♂, 1 ♀; 7 July 1926, 1 ♂, 1 ♀.

97. ***Lygris convergenata* Brem. (1864).**

Sado I., spring 1926, 1 ♂, 1 ♀; 8–11 August 1926, 1 ♂, 7 ♀♀.

98. ***Dysstroma corussaria* (Oberth.) (1880).**

Nikko, November 1925, 1 ♀ (badly worn).

99. **Dysstroma japonica** Heydem. (1929).

Nikko, November 1925, 2 ♀♀.

This species is no doubt the "*Cidaria russata*" of Pryer, *Tr. As. Soc. Jap.* xii. (1) 79 (1884), but is still closer to *cinereata* Moore, with which Sterneck (and I in 1908, *Tr. City Lond. Ent. Soc.* xvii. 58) confused it. See *Mitt. Münchn. Ent. Ges.* xix. 228 for Heydemann's good description and figures.

100. **Dysstroma citrata citrata** (Linn.) (1761).

Nikko, 26 June 1925, 1 ♂; November 1925, 1 ♀.

Dr. Heydemann in his excellent monograph on Old-World *Dysstroma* (*Mitt. Münchn. Ent. Ges.* xix. 207-292) regards the Japanese *citrata* as "rather large, but otherwise differing so little from Central European specimens that their separation does not seem warranted. The range of variation is the same" (*loc. cit.*, p. 271). The Aigner specimens are not large, though that distinction will hold for a fairly high percentage of Japanese material. I am inclined to think that in other respects a racial separation will ultimately be found justified, as the *ensemble* of characters produces an impression which, to the eye accustomed to the European forms, is nearly always distinctive. The hindwing above is generally a shade darker and more unicolorous, the forewing often has the cell-dot more elongate, the proximal brown band is nearly always narrow, except posteriorly, the antemedian rarely much bent, the median area broad, generally with its distal prong elongate (recalling that of *dentifera* Warr., 1896), and showing a very frequent tendency (except, of course, in the wholly black-banded forms) to produce a dusky suffusion from the antemedian band in the posterior part of the cell. All these points, however, are very subtle and more or less inconstant, and will need verification on much larger material than is yet accessible to me. The Nikko ♂ belongs to the black-banded ab. *strigulata* Fab. (1794) = *immanata* Haw. (1809), the ♀ approaches the form which Lange (*Iris* xxxv, t. i, f. 19) figures as "*immanata* (Typus)," presumably a lapse for "*citrata* (Typus)," since it is recognized on p. 150 and t. i, f. 22, 23 that the black-banded is ab. *immanata*.

101. **Thera postalbida** (Wileman) (1911).

Nikko, November 1925, 1 ♂. Takao-San, 21 May 1925, 1 ♀. Tokyo, 16-31 May 1926, 2 ♂♂, 3 ♀♀.

102. **Thera comis** (Butl.) (1879).

Nikko, November 1925, 4 ♂♂. Tokyo, 20-30 November 1925, 1 ♀.

All the specimens are very wasted, showing that the period of emergence was past.

103. **Calocalpe excultata** (Christ.) (1881).

Takao-San, 14 April 1925, 1 ♂.

The specimen is an aberration with the central band of the forewing narrowed, between M^2 and the fold interrupted.

104. **Telenomeuta punctimarginaria** (Leech) (1891).

Nikko, 2 May 1926, 1 ♂. Takao-San, 21 May 1925, 2 ♂♂; 14 July 1925, 5 ♂♂, 2 ♀♀; 5 June 1926, 2 ♂♂; 7 July 1926, 2 ♂♂. Tokyo, July 1925, 1 ♂.

Triphosa inconspicua Bastelb., *Ent. Zeit.* (Stuttgart) xxiii. 77, from Formosa, is synonymous with this.

105. **Loxofidonia hortensiaria** (Grac.) (1890).

Tokyo, 1-15 April 1926, 1 ♂; 16-30 April 1926, 1 ♀.

This species is wrongly placed with *Xanthorhoe* in Seitz (*Macrolep.* iv. 223), its close resemblance to some of the species in that genus having apparently led to the untested assumption that the venation would support this resemblance. Only recently, when I was determining Chinese material for Dr. Sterneck, was the error discovered (see *Iris*, xlvi. 155).

106. **Loxofidonia muscicapata** (Christ.) (1881).

Nikko, October 1925, 1 ♂; November 1925, 2 ♂♂. Takao-San, 21 May 1925, 1 ♂; 14 July 1925, 1 ♂; 20 September 1925, 2 ♂♂.

Unlike its Indian representative *obfuscata* Warr. (1893), this species seems to vary very little; Aigner's seven ♂♂, as well as the eight examples ("Japan") previously in the Tring Museum, are, apart from the slight sexual dimorphism which is prevalent in the *Xanthorhoe* group, very constant.

107. **Epirrhoë supergressa** (Butl.) (1879).

Takao-San, 21 May 1925, 3 ♂♂; 14 July 1925, 1 ♂, 1 ♀; 20 September 1925, 1 ♀; 7 July 1926, 1 ♂.

108. **Epirrhoë placida** (Butl.) (1878).

Sado I., 1-15 August 1925, 1 ♀; 3-11 August 1926, 1 ♂.

Both examples are a modification of ab. *propinquua* Butl. (1881) with the lines which form the central band rather less heavy and confluent than in the common form figured in Seitz, pl. 8e.

As noted in Seitz (*Macrolep.* iv. 258), this species has evidently no near relationship with true *Epirrhoë*, notwithstanding the venational identity. More probably it may belong in the *Callabraxas* group, but pending a further revision I have abstained from erecting a new genus for it; *Epirrhoë* (sens. lat.) still contains some other more or less dissonant elements.

109. **Epirrhoë evanescens** (Butl.) (1881).

Takao-San, 18 June 1925, 1 ♂.

This is obviously a separate species, as the distinctions in the markings are constant and include, in addition to those noted in Seitz (p. 258, as *placida* ab. *evanescens*), the development of a single solid (though often interrupted at M^1) postmedian band of the hindwing, whereas that of *placida* is almost invariably double or only partially fused into one, and a rather clearer white tone. The mimicry of *Abraxas* is much more manifest in it than in the preceding species.

110. *Baptria tibiale* (Esp.) (1791).

Takao-San, 2 June 1926, 1 ♂.

111. *Eulype hecate* (Butl.) (1878).

Asamayama, July 1926, 3 ♂♂.

112. *Horisme (Pseudocollix) minuta* (Butl.) (1881).

Takao-San, 5 June 1926, 1 ♂.

Whatever may be the correct generic location of this rare or overlooked species, it and the others listed under *Pseudosterrha* are certainly not *Collix* (cf. Prout, *Ins. Samoa*, iii (3) 132). In spite of the *Collix*-like underside of *minuta*, they have more in common with *Horisme* Hb. (= the " *Eueymatoge* Hb." of Meyrick, " *Phibalapteryx* Steph." of Hampson), and as that is, in its comprehensive sense, a nearly cosmopolitan genus, they may stand there, pending further research. Only *sparsata* Hb. (" *Collix* Guen." of Meyrick, overlooking Guenée's own notes, *Spec. Gén. Lép.* x. 358) appears to be *sui generis*.

113. *Horisme tersata chinensis* (Leech) (1897).

Nikko, 26 June 1925, 1 ♀. Takao-San, 21 May 1925, 4 ♂♂ (wasted); 15 September 1925, 1 ♀ (smaller).

114. *Horisme stratata* (Wileman) (1911).

Nikko, November 1925, 3 ♂♂.

Apparently a rather scarce species; previously only represented in the Tring Museum by a ♀ from Oiawake, October 1886 (Leech).

115. *Eupithecia rufescens* Butl. (1878).

Takao-San, 18 June 1925, 1 ♀; 5 June 1925, 1 ♀; 9 June 1925, 1 ♀.

116. *Eupithecia subicterata* sp.n.

♀, 28 mm. Comparable to the greyest forms of *icterata* Vill. (1789) in which the brown admixture is not very bright (appearing pinkish-cinnamon or pinkish-buff rather than apricot-buff) and almost confined to the triangular area at end of M and along R^3 - M^1 . Palpus rather longer (nearly 2).—*Forewing* with cell-mark rather longer than in most *icterata*, postmedian heavier, with its angle at R^2 instead of R^1 , posteriorly inclining a little more towards tornus and with a more noticeable curve outward between fold and SM^2 , black longitudinal dashes along fold sharp, though extremely fine.—*Hindwing* with termen slightly less convex than in *icterata*, markings rather stronger, cell-dot larger.—Underside sharply marked.

Takao-San, 2 May 1926, the type ♀ only.

A ♀ (?), slightly less sharply marked (or perhaps less fresh), is figured by Dietze, *Biol. Eup.*, t. 79, f. 862, but not named; the explanation of the plate merely gives "? n.sp., Japan. Färbung ähnlich *subfulvata*. Original in Kgl. Naturalien-Kabinett, Stuttgart."

117. **Eupithecia sophia** Butl. (1878).

Takao-San, 21 May 1925, 1 ♂; 20 September 1925, 1 ♀.
Both are rather small and short-winged.

118. **Eupithecia addictata** Dietze (1908) (?).

Takao-San, 20 September 1925, 3 ♂♂.

As Dietze has remarked (*Iris*, xxi. 195), Eastern Asia seems to hold a perfect "nest-full" of small species, superficially alike, in the *selinata* (H.-Sch., 1861) group. It is therefore highly inexpedient to add to them on the strength of a single good specimen (two are badly worn), at least until I have been able to study Dietze's own material. In most respects the Aigner specimen tallies with the description and figures of *addictata*, but it is as greasy-looking and strongly spotted costally as *selinata* and its appreciably shorter palpus makes one think of *tenebricosa* Dietze (1910), which, however, should have bisinuate postmedian line on the hindwing and apparently a longer termen to the forewing—that of the Takao-San examples being, if either, *shorter* than in *selinata* and *addictata*.

119. **Eupithecia tripunctaria** H.-Sch. (1851).

Takao-San, 15 September 1925, 1 ♀.

I think new for Japan, though well known from Amurland. The specimen is worn and the record may need confirmation.

120. **Eupithecia mandschurica** Stgr. (1897) (?).

Sado I., 1-15 August 1925, 1 ♂, 5 ♀♀; 3-11 August 1926, 6 ♀♀.

A series of *absinthiata*-like forms, mostly in poor condition. The only ♂ (body and forewings only) is small but has, so far as can be made out without dissection, a body-plate like that of *absinthiata*. I am not aware that any anatomical work has yet been undertaken to test the status of *mandschurica*, which was published as a form of *absinthiata* and afterwards separated.

121. **Eupithecia** sp.

Takao-San, 21 May 1925, 1 ♂.

Worn. The divided body-plate suggests affinity with *castigata* Hb. (1808-14) and the markings may have been somewhat similar, but the wings are a little narrower. It does not particularly resemble the figures of *ussuriensis* Dietze (1910).

122. **Eupithecia** sp.

Nikko, November 1925, 1 ♀.

Very worn. The tone and fine markings suggest, in its present condition, *parallelaria* Bohatsch (1893); smaller, less extremely elongate, the termen of the hindwing subconcave between R^1 and R^3 or M^1 and with a conspicuous cell-dot. Recalls also the figure of *detritata* Stgr. (*Iris*, x. t. iii, f. 77), except that the postmedian line is much more distal, on the forewing passing midway between cell-dot and termen.

123. **Eupithecia** sp.

Takao-San, 15 September 1925, 1 ♂.

Worn, rather recalling *virgaureata* Dbld. (1861), but with more nearly the structure of *selinata* H.-Sch., perhaps belonging to that group.

124. **Chloroclystis consueta** (Butl.) (1879).

Tokyo, 18 May 1925, 1 ♀

A rather large form, agreeing well with a ♂ from the same locality (Dr. Fritze, 1890) in the Tring Museum.

125. **Chloroclystis coronata lucinda** (Butl.) (1879).

Takao-San, 9 June 1926, 1 ♀; 7 July 1926, 1 ♂.

126. **Chloroclystis (Rhinoprora) excisa** (Butl.) (1878).

Takao-San, 2 May 1926, 1 ♂. Sado I., 1-15 August 1925, 1 ♀; 3-11 August 1926, 2 ♂♂, 3 ♀♀.

127. **Brabira artemidora** (Oberth.) (1884).

Nikko, 26 June 1925, 1 ♂. Sado I., 3-11 August 1926, 1 ♂.

128. **Microloba bella bella** (Butl.) (1878).

Takao-San, 21 May-14 July, 10 ♂♂, 4 ♀♀; 15 September 1925, 1 ♂. Hachijoshima (Fatsizio I.), 23 July 1926, 1 ♂.

129. **Heterophleps fusca** (Butl.) (1878).

Takao-San, 9 June 1926, 1 ♀.

Worn and presenting rather a strange appearance, in some respects recalling an unnamed Chinese species, but probably an example of the not very rare aberration of *fusca* in which the subterminal costal spot of the forewing is absent.

130. **Carige irrorata** Butl. (1879).

Takao-San, 14 June 1925, 1 ♀; 14 September 1925, 1 ♂, 20 September 1925, 1 ♂, 5 ♀♀.

It has not yet been definitely proved that this is anything more than a very stable dimorphic form of *cruciplaga* Walk., which—as I have recently pointed out, Nov. Zool. xxxv. 143—is probably of Japanese origin. The shape of the wings, however, though slightly variable, is nearly always more extreme in *cruciplaga* than in *irrorata*, the antemedian line of the forewing rather more sinuous, and these distinctions, added to the difference in maculation, renders it extremely probable that we have to deal with two species. *C. absorpta* Warr. (1899) is synonymous with *irrorata*, though the selected type-specimen was a rather extreme form (ab.).

131. **Carige cruciplaga cruciplaga** (Walk.) (1861).

Semiothisa (Carige) cruciplaga Matsumura, Thous. Ins. Jap., Supp. ii, t. xxiv, f. 20 (1911).

Takao-San, 18 June 1925, 1 ♂; 25 June 1925, 1 ♂.

A curious greyish (heavily irrorated) form with rather elongate forewing, bearing rather pronounced dark markings distally to the subterminal, beginning to recall *extremaria* Leech (1897), which is, however, a distinct species.

132. **Naxidia maculata** (Butl.) (1879).

Takao-San, 18 June 1925, 1 ♀.

133. **Trichopterigia volitans** (Butl.) (1878).

Near Tokyo, April 1925, 3 ♀♀.

134. **Nothopteryx obscuraria** (Leech) (1891).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 2 ♂♂; 9 June 1926, 2 ♀♀.

135. **Nothopteryx hemana** (Butl.) (1878).

Nikko, 26 June 1925, 2 ♀♀. Takao-San, 14 July 1925, 1 ♀; 2 May 1926, 2 ♀♀. Near Tokyo, April 1925, 1 ♂; 16-30 April 1926, 1 ♂; 15-31 May 1926, 1 ♂.

136. **Nothopteryx terranea** (Butl.) (1879).

Takao-San, 2 May 1926, 3 ♂♂, 3 ♀♀.

137. **Nothopteryx misera** (Butl.) (1879).

Near Tokyo, April 1925, 1 ♀.

138. **Otoplecta frigida** (Butl.) (1879).

Nikko, 2 May 1926, 1 ♂.

139. **Sauris nanaria** Leech (1897).

Takao-San, 25 June 1925, 1 ♂; 7 July 1926, 1 ♂, 1 ♀.

It has not hitherto been pointed out that this species, which was accidentally omitted from Scitz, vol. iv, is closely related to *subalba* Hmpsn. (1895), the Indian form or representative of *eupitheciata* Snell. (1881, Celebes).

140. **Oporinia mediolineata** (Prout) (1914).

Nikko, 26 June 1925, 7 ♂♂; 2 May 1926, 1 ♂.

Basing it on a single ♀ from Owakidana, I overlooked the affinities of this species and placed it in *Cidaria* (*Coenotephria*). Subsequently Mr. Joicey received a series, mostly ♂♂, from the Kyoto-Osaka district, collected in the middle of November, and I transferred it to *Oporinia*, which is approximately correct, although the discocellulars of the fore-, as well as of the hindwing, are biangulate. I suspect some error in dating the Nikko specimens of this, *Operophtera brumata* and some others.

141. **Operophtera relegata** Prout (1908).

Tokyo, December 1925, 1 ♂.

142. **Operophtera brumata** (Linn.) (1758).

Nikko, 26 June 1925, 1 ♂.

143. *Asthena amurensis* (Stgr.) (1897).

Sado I., 1-15 August 1925, 1 ♂; 3-11 August 1926, 4 ♂♂.

Attention should be called to an important note by Djakonov (*J.B. Mart. Staatsmus. Minussinsk*. iv. (1) 47), showing this to be a valid species. Typically, *amurensis* should have cell-dots, which are not present in the Sado I. specimens. They are therefore presumably a race or still another closely allied species. In any case they are not *nymphaeaeta* Stgr. (1897), by the less projecting antennal joints, short ciliation and apparently the genitalia.

144. *Asthena anseraria corculina* Butl. (1878).

Takao-San, 21 May 1925, 2 ♂♂; 14 June 1925, 1 ♂, 1 ♀; 18 June 1925, 2 ♀♀; 20 September 1925, 1 ♀. Sado I., 1-15 August 1925, 1 ♂, 1 ♀.

To the differentiation of this race, as given in Seitz, *Macrolep.* iv. 272, should be added that this is the "var. ?" noted by Staudinger (*Iris*, x. 98) in his article on the "Geometridae of Amurland," with the terminal dots not strigiform.

145. *Asthena nymphaeaeta* (Stgr.) (1897).

Takao-San, 21 May 1925, 7 ♂♂, 1 ♀; 14 June 1925, 1 ♂, 2 ♀♀; 18 June 1925, 1 ♂; 15 September 1925, 1 ♀. Sado I., 1-15 August 1925, 3 ♂♂, 8 ♀♀; spring 1926, 1 ♂; 3-11 August 1926, 1 ♂, 1 ♀.

Some of the ♀♀ enumerated above may belong to the Japanese race (?) of *amurensis* (*supra*), which I confess I can at present only distinguish by ♂ characters.

146. *Asthena ochrifasciaria* Leech (1897).

Takao-San, 21 June 1925, 1 ♂; 9 June 1926, 2 ♂♂; 7 July 1926, 1 ♀.

147. *Laciniodes unistirpis* (Butl.) (1878).

Takao-San, 21 May-14 June, 27 ♂♂, 4 ♀; 7 July 1926, 1 ♂ (worn); 20 September 1925, 2 ♀♀.

The September specimens are not noticeably smaller, but both have the dark subterminal shade of the forewing unusually heavy. On the whole the series shows very little variation, and the same is true of the rest of the Japanese material known to me. Presumably *unistirpis* is the E. Asiatic race of *pluri-linearia* Moore (1867) from the Himalayas, but as I find there are two or three apparent species in that region and W. China, it is not safe to attach *unistirpis* definitely to any particular one until a revision of the group has been undertaken.

148. *Hydrelia adesma* sp.n.

♂♀, 18-20 mm. Extremely similar to *nisaria* Christ., but slightly rounder-winged and markedly more suffused, with the cell-dots weakened, presenting a more uniform appearance of greyish drab. Antennal ciliation of the ♂ less minute, on the broad proximal segments about $\frac{1}{3}$, on the narrower distal ones about $\frac{1}{2}$. Very readily distinguished in both sexes by having the normal hindwing venation of *Hydrelia*, with M^1 arising well separate from R^3 , while in *nisaria* these veins are rather strongly stalked.

Takao-San, 5 June 1926, ♂ type; 7 July 1926, 1 ♀.

A ♂ from "Japan," determined by Warren as *nisaria*, has stood in the Tring Museum over a blank label and I find, on examination of the British Museum series of ostensible *nisaria*, a ♂ from Gensan (Corea), a ♂ from Yezo and a ♀ from Hakodate. The species will doubtless be found in other collections mixed with *nisaria*.

149. **Hydrelia nisaria** (Christ.) (1881).

Takao-San, 2 May 1926, 1 ♂; 5 June 1926, 1 ♂.

150. **Venusia (Discoloxia) phasma** (Butl.) (1879).

Nikko, October 1925, 1 ♀; November 1925, 9 ♂♂, 16 ♀♀. Takao-San, 15 September 1925, 2 ♂♂; 20 September 1925, 15 ♂♂, 7 ♀♀; 9 June 1926, 1 ♂.

The June specimen is worn, but so are most of the Nikko ♂♂ and several ♀♀. Leech took the species at Nikko in September and at Hakodate in August, but specimens from Gensan, Corea, are dated July.

I accept the view of Forbes (*Journ. N. Y. Ent. Soc.* xxv. 60) that *Discoloxia* is nothing more than a non-pectinate subgenus of *Venusia*.

151. **Eschatarchia lineata** Warr. (1894).

Takao-San, 21 May 1925, 7 ♂♂; 14 June 1925, 2 ♂♂; 25 June 1925, 1 ♂; 5 June 1926, 2 ♂♂, 1 ♀; 9 June 1926, 1 ♂.

Apparently a very local species; the Tring Museum previously possessed only the type ♂ ("Japan") and one ♀ from Gifu.

Palpoctenidia (Warr. MS.) gen.n.

Face smooth. Palpus slender, rather short, terminal joint distinct. Tongue developed. Antenna in ♂ bipectinate, in ♀ simple. Hindtibia with all spurs. Wings smoothly scaled; ♂ retinaculum a broad bar.—*Forewing* with termen rounded; cell not quite $\frac{1}{2}$, DC normally curved; $SC^{1,5,2,3,4}$ stalked, R^1 separate, R^2 normal, M^1 separate.—*Hindwing* with abdominal margin fairly long, termen bluntly angled at R^3 ; cell $\frac{1}{3}$ or $\frac{2}{5}$, DC straightish, oblique; C anastomosing with cell to rather beyond middle; SC^2 very shortly stalked, R^2 slightly before middle, M^1 well separate.

Type of the genus: *Palpoctenidia phoenicosoma* (Swinh.) = *Chrysocraspeda phoenicosoma* Swinh. (1895).

Differs essentially from *Chrysocraspeda* in the Larentiine (or Asthenine) anastomosis of C of the hindwing; from *Cumbogia*, to which Hampson (*Faun. Ind., Moths*, iv. 561) transferred it, in that SC^1 of the forewing arises before SC^5 and M^1 of the hindwing is well separate from R^2 .

152. **Palpoctenidia phoenicosoma** (Swinh.) (1895).

Takao-San, 7 July 1926.

New for Japan, probably a separable race, or even a distinct though closely allied species, as the specimen is rather broad-winged and pale, the postmedian, especially on the hindwing, with its central projection less developed. The name-typical form is fairly common in the Khasis and is also known to me from Gopaldhara, Sikkim.

153. *Hastina azela azela* (Butl.) (1878).

Takao-San, 14 July 1925, 1 ♀; 18 July 1925, 1 ♀.

SUBFAM. GEOMETRINAE.

154. *Arichanna tetrica* (Butl.) (1878).

Nikko, 26 June 1925, 2 ♂♂, 2 ♀♀. Takao-San, 14 April 1925, 1 ♂; 19 April 1925, 1 ♀; 21 May 1925, 1 ♀; 2 May 1926, 1 ♀.

155. *Arichanna jaguararia gaschkevitchii* (Motseh.) (1860).

Asamayama, June 1926, 1 ♀. Ikako, Central Hondo, 25 July 1926, 2 ♂♂. Takao-San, 21 June 1925, 1 ♂; 25 June 1925, 1 ♂; 14 July 1925, 2 ♂♂; 5 June 1926, 1 ♂; 18 June 1926, 1 ♀. Japanese Alps, June 1926, 3 ♂♂. Sado I. 1-15 August 1925, 1 ♂, 6 ♀♀; spring 1926, 1 ♂; 3-11 August 1926, 2 ♀♀.

The Japanese race is whiter than the Chinese *j. jaguararia* Guen., generally with heavier maeulation.156. *Metabraxas clerica* Butl. (1881).

Tokyo, 16-31 May 1926, 1 ♂. Sado I., 1-15 August 1925, 8 ♂♂, 2 ♀♀; 3-11 August 1926, 4 ♂♂.

157. *Dilophodes elegans elegans* (Butl.) (1878).

Takao-San, 21 May-25 June, 8 ♂♂, 3 ♀♀; 15 September 1925, 1 ♀. The September specimen is small.

158. *Perenia albinigrata* Warr. (1896).

Takao-San, 21 May-7 July, 54 ♂♂, 10 ♀♀.

Presumably abundant locally, as is the case with so many of the *Abraxas* group. The Tring Museum previously possessed, in addition to Warren's type, only four Asamayama and four Yokohama examples and a short series from different localities in W. China and from Ichang. The variation is only slight, but the accession of this splendid series brings out clearly that the Japanese forms (or at least those from the mountains—the four from Yokohama and Wileman's material are more equivocal) have the black spots more strongly developed than the Chinese, so that the latter may probably be found worthy of a subspecific name. *Arichanna jaguararia* and *Dilophodes elegans* show the same tendency in Japan. *P. "felinaria" (!) formosana* Mats. (*Thous. Ins. Jap.*, supp. ii, t. xxvi, f. 8) is apparently a somewhat intermediate specimen of *albinigrata*; I do not know the species from Formosa.

159. *Perenia giraffata* (Guen.) (1858).

Takao-San, 14 April 1925, 2 ♂♂; 5 June-7 July, 36 ♂♂. Kuma Shikoyu, 27 August 1925, 1 ♀.

The Takao-San series is very constant. The ♀ has the markings enlarged, partly confluent, notably the cell-spot of the forewing with the central post-medians. The enlargement of the cell-spot is in a measure characteristic of the sex (compare Felder's type of "grandaria," t. exxix. 28), but this Kuma Shikoyu specimen is much more extreme.

160. *Culeula panterinaria sychnospilas* subsp.n.

"*Percnia exanthemata* Moore," Wileman, *Tr. Ent. Soc. Lond.*, 1911, p. 318 (1911) (Japan).

Very variable and often extremely asymmetrical in the median area of the forewing, in these respects agreeing with all the races, or at least with those from China. Yet differentiable by the general copiousness and heaviness of the markings, especially by the complete or almost complete postmedian of both wings. Nearest in all respects to *p. abraxata* Leech (*Tr. Ent. Soc. Lond.* 1889, p. 143, t. ix, f. 14), but with the yellow line or band of the hind-, as well as of the forewing continued, uninterruptedly or interruptedly, to the costa, very generally accompanied by apical dark spots, the black clouding at tornus increased, central inner-marginal spot almost invariably well developed, costa of forewing often darkened, abdomen heavily clouded above.

Sado I., 1-15 August 1925, 14 ♂♂, including the type. Takao-San, 18 June 1925, 1 ♂; 21 June 1925, 1 ♂; 7 July 1926, 4 ♂♂. Also in coll. Wileman from Yamato and Kiushiu (Hyuga) and in coll. Joieey from Takao and Mt. Kurama near Kyoto.

Unfortunately I have not seen name-typical *panterinaria* Brem. & Grey (1853), from Pekin, and erroneously figured *p. exanthemata* Moore (1888), from the Himalayas, as Palaearetie (Seitz, *Macrolep.* iv, t. 14 f.).

161. *Cystidia stratonice* (Stoll) (1782).

Asamayama, July 1926, 1 ♂, 1 ♀. Ikaho, Central Hondo, 25 July 1926, 1 ♀. Takao-San, 25 June 1925, 2 ♂♂. Tamagawa, W. of Tokyo, 25 June 1926, 1 ♂. Tokyo, July 1925, 1 ♂.

162. *Cystidia couaggaria* (Guen.) (1858).

Asamayama, July 1926, 1 ♂. Ikaho, Central Hondo, 25 July 1926, 1 ♂. Takao-San, 25 June 1925, 2 ♂♂; 14 July 1925, 1 ♂; 9 June 1926, 1 ♂, 1 ♀. Tokyo, June 1925, 3 ♂♂; July 1925, 2 ♂♂, 1 ♀.

163. *Abraxas latifasciata* Warr. (1894).

The Japanese *Abraxas* of the *miranda* group are still in great need of revision and little can at present be said concerning the long Aigner series except that it will add some useful material for investigation whenever such revision may be found possible. It seems fairly evident, however, that *latifasciata* is not, as it was made to appear in Seitz (*Macrolep.* iv, 311), a form of *miranda* Butl., seeing that in the last named the ♂ hindwing has a costal protuberance near the base which is scarcely even adumbrated in *latifasciata*. On the basis of this distinction it has become possible to catalogue roughly the material, although there may still be a further mixture, and in any case the placing of some ♀♀ is precarious.

Nikko, October 1925, 1 ♂.

Not extremely small; rather heavily marked.

? Asamayama, July 1926, 1 ♀.

The large, broad mideostal spot (cell-spot) of the forewing and some strong maeulation between the postmedian and the terminal series of the hindwing

give this a strange, at first glance rather *miranda*-like, appearance. Perhaps it is a new species, but it is difficult to deal with a single ♀.

Takao-San, 21 May 1925, 9 ♂♂, 1 ♀; 14 June 1925, 1 ♂; 18 June 1925, 1 ♂, 2 ♀♀ (and see *fulvobasalis*, *infra*); ? 20 September 1925, 1 ♀ (transitional towards *miranda*); ? 2 June 1926, 1 ♀ (large, clean, transitional towards [form. ?] *fulvobasalis*). Tokyo, April 1925, 1 ♂; 18 May 1925, 2 ♂♂, 3 ♀♀; June 1925, 2 ♀♀; 16-31 May 1926, 4 ♀♀.

Moderately strongly variable, both in size and maculation; several examples have the basal patch almost as bright as in *fulvobasalis*, which will probably prove to be a form of the same species.

Sado I, 1-15 August, 1925, 2 ♀♀.

Presumably a second (or third ?) brood, rather small, not quite so *fulvobasalis*-like as the following specimen, but helping to connect that with normal *latifasciata*.

? Corea : Kikai Nojo, 19 August 1926, 1 ♀.

A very small (32 mm.) late-brood form of the *latifasciata* series, not quite clean and bright enough for (form. ?) *fulvobasalis*, though tending in that direction.

164. *Abraxas fulvobasalis* Warr. (1894).

Takao-San, 18 June 1925, 1 ♀.

Very similar to typical *fulvobasalis*, but with the basal patch of the forewing not quite so free from blackish admixture, median spots developed behind M. If *fulvobasalis* (Yezo) is really a separate species, concerning which I have already expressed my doubts, it may well be that the present specimen should remain with the preceding series as a very extreme ab.

165. *Abraxas miranda* Butl. (1878).

Takao-San, 14 May 1925, 1 ♀; 21 May 1925, 6 ♂♂. Tokyo, 15-31 May 1926, 1 ♂.

The female is considerably larger than the rest of the series, more creamy, postmedian of forewing more broken into irregular pairs of vein-spots, cell-spot large, broad, with irregular projections proximad; hindwing with median series more band-like, postmedian pairs more widely sundered. It is so different from the rest as to be hard to reconcile, though a series of undoubtedly *miranda* already in the Tring Museum shows intergrades with *deminuta* Warr. (1894), which I now consider a probable form of *miranda* and to which I refer Aigner's seven males. One of the Takao-San is banded, closely analogous to *continuata* Warr. (Nov. Zool. x. 269, as *sylvata* ab. !), which was founded on a ♀, but seems to be an ab. of *latifasciata*, not of the present species.

166. *Ligdia japonaria* Leech (1897).

Takao-San, 14 June 1925, 2 ♂♂; 18 June 1925, 5 ♂♂; 5 June 1926, 1 ♂; 7 July 1926, 2 ♂♂.

167. *Bapta* (?) *simplicior* (Butl.) (1881).

Nikko, October 1925, 3 ♂♂, 1 ♀; November 1925, 6 ♂♂, 9 ♀♀. Takao-San, 9 June 1925, 1 ♂, 1 ♀; 20 September 1925, 1 ♂.

168. **Bapta bimaculata subnotata** Warr. (1895).

Takao-San, 5 June–14 July, 44 ♂♂, 7 ♀♀. Sado I., 1–15 August, 9 ♂♂, 2 ♀♀.
Mostly much worn.

169. **Bapta temerata** (Schiff.) (1775).

Takao-San, 21 May 1925, 7 ♂♂, 3 ♀♀; 18 June 1925, 1 ♂, 2 ♀♀; 21 June 1925, 2 ♂♂, 2 ♀♀; 25 June 1925, 1 ♂; 5 June 1926, 2 ♂♂; 7 July 1926, 1 ♀. Sado I., 1–15 August 1925, 7 ♂♂, 2 ♀♀; 3–11 August 1926, 2 ♂♂.

Rather strongly variable in the heaviness of the bands.

170. **Bapta foedata** (Butl.) (1879).

Takao-San, 21 May 1925, 3 ♂♂; 14 June 1925, 1 ♀; 5 June 1926, 1 ♂; 9 June 1926, 1 ♀.

171. **Crypticometa incertaria** (Leech) (1891).

Sado I., 1–15 August 1925, 1 ♂.

172. **Parabapta clarissa** (Butl.) (1878).

Hirayama, Nindo, 5 May 1926, 3 ♂♂. Takao-San, 19 April 1925, 1 ♂; 21 May–25 June, 35 ♂♂, 19 ♀♀.

173. **Peratophyga hyalinata grata** (Butl.) (1879).

Takao-San, 14 June 1925, 1 ♂

The name-typical, Himalayan race of this species (*hyalinata* Koll., 1844 = *aerata* Moore, 1867) is so variable that it is not easy to discriminate the very similar, though less variable, *grata* Butl. of Japan. As, however, the moderately trained eye can nearly always pick it out, I consider that it was premature to sink the latter (Hampson, *Faun. Ind., Moths*, iii. 164; Prout in Seitz, *Macrolep.* iv. 316). The tone is rather different (less ochreous), the proximal edge of the median area of the forewing generally less sinuous, the distal edge with its central tooth smaller and more pointed, the pale mid-subterminal spot not or little developed, etc. The Chinese race *totifasciata* Wehrli (1923) is in general more distinct from both the above than they are from one another.

174. **Lomographa hyriaria** (Warr.) (1894).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 1 ♂; 18 June 1925, 5 ♂♂; 21 June 1925, 1 ♂, 1 ♀; 25 June 1925, 1 ♀; 14 July 1925, 1 ♀; 9 June 1926, 1 ♂; 7 July 1926, 1 ♂, 3 ♀♀.

Warren (Nov. ZOOL. i. 406) only gave his type locality as "Japan" and some of the specimens were only so labelled; but the holotype and two others were from Nagasaki, May 1886 (Leech). The species, however, seems everywhere very constant.

175. **Lomographa (Ingena) deletaria hypotaenia** subsp.n.

♂, 37–39 mm. Larger than name-typical *deletaria* Moore (1888) from Sikkim and the Khasis. Darker, the prevailing tone brownish drab to benzo-

brown; the pale parts less ochreous (pale cream-buff), the apical patch of the forewing standing out sharply. Underside much less weakly marked than in *d. deletaria*, both wings with strong cell-spot and postmedian, the latter generally broad, band-like.

Takao-San, 5 June 1926, 1 ♂; 9 June 1926, 3 ♂♂, including the type.

Moore (*Lep. Coll. Atk.* 261), with his good eye for species, recognized that there were two in the present group and named them "*Macaria*" *deletaria* and *indistincta*. But he failed to notice—or at least did not mention—a structural difference, and thus left the way open for Hampson (1895) to sink the latter to the former; *deletaria*, but not *indistincta*, has the hindtibia dilated, with a fuscous hair-pencil, the correlated abdominal spine developed. Hampson was further at sea in placing the species in *Bapta* and especially in assigning it to "Sect. 1" (*Leucetaera*). It is by his key a *Lomographa* (= *Stegania*), SC² being absent (coincident with SC¹), SC¹ arising from the cell. *Chrostobapta* Warr. (1909), erected for this group, must in any case sink to *Ingena* Walk. (1862). Wileman (*Tr. Ent. Soc. Lond.* 1911, p. 298) first recorded "*deletaria*" from Japan, having obtained three specimens from Yoshino, Yamato, August and September. He says that they "are referable to *indistincta* Moore," which clearly implies that he accorded to the latter the status of an aberration rather than—as in Hampson—a synonym. As a matter of fact *d. hypotaenia* has nearly the coloration of typical *indistincta*. An inspection of the Wileman collection shows that the Yamato specimens agree accurately with the Takao-San. A further ♀, rather faded (Satsuma, J. H. Leech), stands in the British Museum collection.

176. ***Ninodes splendens* Butl. (1878).**

Takao-San, 21 May 1925, 1 ♂; 9 June 1925, 1 ♂, 1 ♀; 14 June 1925, 1 ♂; 18 June 1925, 1 ♀; 9 June 1926, 1 ♂.

177. ***Pogonitis cumulata* Christ. (1881).**

Takao-San, 9 June 1926, 1 ♀.

178. ***Cabera purus* (Butl.) (1878).**

Hirayama, Nindo, 5 May 1926, 5 ♂♂. Takao-San, 21 May 1925, 1 ♂; 9 June 1926, 1 ♂. Sado I., spring 1926, 1 ♂; 1–15 August 1925, 1 ♀; 3–11 August 1926, 1 ♂, 1 ♀.

Moderately variable. The August specimens are small, but the spring ♂ from Sado I. is somewhat intermediate between these and the mainland examples. The Hirayama five are all heavily dusted, but one lacks the cell-dot of the forewing. On the other hand the August ♂ from Sado I. has so little dusting as to be virtually *schaefferi* Brem. (1864), of which I now suspect *purus* Butl. will prove a form.

179. ***Cabera griseolimbata* (Oberth.) (1879).**

Takao-San, 21 May–14 July, 35 ♂♂, 10 ♀♀. Tokyo, April 1925, 1 ♂.

Very constant. Apparently a local species, hitherto only represented in the Tring Museum by one ♂ from Sidemi, Manchuria, and two ♀♀ from "Japan."

180. **Cabera** (?) *punctata* (Warr.) (1894).

Takao-San, 21 May 1925, 1 ♂.

This rarity, described by Warren (Nov. Zool. i. 405) from a single ♀ from Japan, as *Deilinia* (?) [i.e. *Cabera* Tr.], and redescribed by Leech three years later (*Ann. Mag. Nat. Hist.* (6) xix. 198) as *Bapta candidaria*, from two Oiwake ♀♀ which he mistook for a pair, is not a true *Cabera*, as it has—in addition to the venational discrepancy noted in Seitz (iv. 318)—simple instead of fully pectinate ♂ antenna.

181. **Synegia hadassa** (Butl.) (1878).

Takao-San, 18 June 1925, 2 ♂♂, 1 ♀; 25 June 1925, 9 ♂♂; 14 July 1925, 1 ♀; 7 July 1926, 1 ♀. Sado I., spring 1926, 1 ♂; 3–11 August 1926, 4 ♂♂, 3 ♀♀.

The above series shows transitions towards *omissa* Warr. (1894), which is probably a South Japanese race of *hadassa*. In addition, the following forms are somewhat problematical.

Sado I., 1–15 August 1925, 1 ♂; 3–11 August 1926, 1 ♂.

These are small, rather pale, the lines intensified, less band-like, less dentate. Both are in poor condition.

Sado I., 1–15 August 1925, 2 ♂♂; 3–11 August 1926, 1 ♂, 2 ♀♀.

The ♂♂ are very small; colour in both sexes rather bright, though not like that of the following species; postmedian line little bent in the middle (in the preceding form well bent).

182. **Synegia inconspicua** (Butl.) (1881).

Takao-San, 18 June 1925, 1 ♀; 25 June 1925, 2 ♂♂, 1 ♀; 14 July 1925, 6 ♂♂, 1 ♀; 15 September 1925, 1 ♂; 9 June 1926, 1 ♀; 7 July 1926, 1 ♀. Tokyo, 15 November 1925, 1 ♂.

I think, from the rather less elongate wings and more bent postmedian, that this will prove a form of *esther* Butl. 1881 (which has page-priority) rather than of *hadassa* Butl., as given in Seitz (*Macrolep.* iv. 318). It may, however, be a third species, as Butler thought—costal margin of forewing strongly darkened, etc.

Form. (?) *suffusa* Prout (1915): Takao-San, 20 September 1925, 3 ♀♀.

183. **Petelia albifrontaria** (Leech) (1891).

Takao-San, 21 May 1925, 2 ♂♂, 1 ♀.

184. **Petelia morosa** Butl. (1881).

Takao-San, 21 May 1925, 2 ♂♂; 14 June 1925, 1 ♂; 14 July 1925, 1 ♂; 15 September 1925, 1 ♂.

All except the May specimens are rather small.

185. **Hypephyra terrosa** Butl. (1889).

Nikko, 2 May 1926, 1 ♂. Takao-San, 2 May–14 July, 35 ♂♂, 11 ♀♀; 15 and 20 September 1925, 9 ♂♂, 4 ♀♀. Tokyo, 15 July 1925, 1 ♂.

186. **Anagoga pulveraria japonica** (Butl.) (1881).

Sado I., 1-15 August 1925, 4 ♂♂, 3 ♀♀; 3-11 August 1926, 7 ♂♂. Japanese Alps, July 1926, 1 ♂.

187. **Ephoria arenosa** (Butl.) (1878).

Takao-San, 21 May-7 July, 45 ♂♂. Hachijoshima (Fatsizio I.), 23 July 1926, 1 ♂.

Variation slight. None approach the interesting race *insularis* Kardakoff (1928), recently described from Russian Island (8 km. S.W. of Vladivostok).

188. **Proteostrenia leda** (Butl.) (1878).

Asamayama, July 1926, 2 ♂♂. Takao-San, 21 June 1925, 1 ♂; 25 June 1925, 5 ♂♂, 1 ♀; 7 July 1926, 1 ♂.

The sole ♀ is of the form *strenioides* Bult. (1878).

189. **Scardamia aurantiacaria** Brem. (1864).

Takao-San, 7 July 1926, 1 ♀.

190. **Nothomiza formosa** (Butl.) (1878).

Hirayama, Nindo, 5 May 1926, 4 ♂♂; Takao-San, 21 May 1925, 2 ♂♂; 25 May 1925, 1 ♀; 5 June 1926, 1 ♂; 9 June 1926, 1 ♂; 7 July 1926, 1 ♂, 1 ♀. Near Tokyo, April 1926, 1 ♂. Tokyo, 16-31 May 1926, 1 ♂.

191. **Ennomos autumnaria nephotropa** subsp.n.

The Japanese race of *autumnaria* Werneb. (1864) should be separated from the European, although, on account of the extreme variability of the species, most of the distinctions fail in certain individual examples. The best character is in the wing-form, the tooth at R^3 being appreciably stronger, particularly on the forewing. General tone as in the brighter forms of *a. autumnaria*, the costal margin of the forewing generally more sharply pale; the irroration and minute strigulation on an average brighter, its grey element being more dominated by the deep orange on which it is set; cell-marks more elongate (especially that of forewing), that of hindwing less blackened; antemedian line of forewing almost straight after the pronounced subcostal angle, sometimes with a cloudy spot at the bend; subapical dark shading of forewing generally more developed, typically forming an oblique, broadening band (more or less interrupted by the veins) from costa just outside postmedian to M^1 at or close to termen.

Nikko, October 1925, type and another ♂; November 1925, 1 ♂. Hachijoshima (Fatsizio I.), 23 July 1926, 1 ♀. Also in the Tring Museum from Yezo (3 ♂♂) and from Asamayama, 13 August 1898, 8 ♂♂, 2 ♀♀; further represented in most of the larger collections.

The Hachijoshima ♀ has the irroration small, the lines sharply expressed, approaching the enigmatical pair which are figured by Matsumura (*Thous. Ins. Jap.*, supp. ii, t. xxiv, f. 5, 6) as *alniaria* L. and which presumably represent aberrations of *autumnaria nephotropa*; his figure 8 on the same plate (as *autumnaria* Wern. ♂) is a different ab., with both lines strong anteriorly but obsolete from M and R^3 hindward.

192. *Ennomos fumosa* sp.n.

♂, 60–65 mm. Face ochraceous-orange, with a few dusky spots. Palpus rather short, at tip dark-mixed. Tongue weak. Hindtibia not hairy; all spurs present. Head and body concolorous with wings, the thorax in front more orange.

Forewing with apex produced, a tooth at SC^5 , the latter not very acute, the termen being straightish, rather strongly oblique, without excavation, only very slightly waved; $SC^1, 2$ coincident, sometimes connected with stalk of $SC^3, 4$, R^3 and M^1 arising rather widely separate; cream-buff, in part suffused with ochraceous buff, coarsely and irregularly irrorated and strigulated with grey, least densely in median area; markings dark grey; cell-spot large, oval, enclosing a thick streak of the ground-colour at DC ; antemedian line very proximal, strongly excurved in its anterior part, obscured posteriorly; median rather strong, proximal to cell-spot, extremely oblique outward from costa, acutely angled between C and SC , then straightish; postmedian brownish, about 6 mm. from termen, nearly parallel therewith, but more gently curved and without the anterior teeth; distal cloudings strongest at tornus and (especially) between the radials.—Hindwing with apex well-marked, nearly rectangular, termen crenate in anterior half, faintly waved in posterior; R^3 vestigial, R^3 and M^1 rather widely separate; cell-mark small and very weak, scarcely noticeable; median line as on forewing, but fading out at costa; postmedian rather more proximal than on forewing; distal cloudings forming an ill-defined, macular presubterminal band.

Underside rather more warmly coloured, with similar but more blurred pattern; lines of forewing fading out posteriorly; hindwing more densely irrorated, with median line strong to costa.

Nikko, October 1925, the type only. Mt. Kurama, near Kyoto, 23 October 1920 (I. Sugitani), 3 ♂♂ in coll. Joicey, sent as *Ennomos fumosa* Mats. (MS.) and as "*Sebastosema bubonaria* Warr."

Not quite a typical *Ennomos* either in structure or pattern, but best placed here. Close to *E. aenigma* Prout (1914), but with 4 spurs and with more markings—cell-spot and subterminal clouds. Much larger and darker than "*Angerona*" *stramineata* Warr. (1888), to which it bears a slight superficial resemblance.

193. *Selenia tetralunaria* (Hufn.) (1767).

Nikko, 26 June 1925, 1 ♂, 1 ♀; 2 May 1926, 1 ♂.

Apparently not a common species in Japan. The specimens (first generation) are large, sometimes less purple than the ordinary European forms, but no necessity has yet been shown for racial separation. Matsumura's (*Thous. Ins. Jap.*, supp. ii, t. xxiv) fig. 2, erroneously determined as *pallidaria* Leech, gives a much more normal representation of *tetralunaria* than his fig. 1.

194. *Garaeus mirandus* Butl. (1881).

Takao-San, 21 May 1925, 1 ♂; 2 May 1926, 1 ♂.

This rare and striking species was not previously represented in the Tring Museum collection.

195. *Ocoelophora lentiginosaria* (Leech) (1891).

Takao-San, 21 May 1925, 1 ♂.

196. *Xyloscia subspersata* (Feld.) (1875).

Takao-San, 21 May 1925, 4 ♂♂, 3 ♀♀; 14 June 1925, 1 ♂; 18 June 1925, 2 ♂♂; 14 July 1925, 1 ♂, 1 ♀; 9 June 1926, 1 ♂.

197. *Auaxa cesadaria* Walk. (1860).

Takao-San, 25 June 1925, 1 ♂.

198. *Zethenia albonotaria* (Brem.) (1864).

Hirayama, Nindo, 5 June 1926, 1 ♀. Takao-San, 14 April–21 June, 23 ♂♂, 15 ♀♀. Tokyo, 1–15 June 1926, 1 ♀.

199. *Zethenia rufescentaria* Motsch. (1860).

Takao-San, 14 April–14 July, 68 ♂♂, 27 ♀♀. Tokyo, 1–15 June 1926, 1 ♂.

After about the beginning of June both the *Zethenia* species were so worn as to be scarcely worth taking, but on 14 July there seems to have been a partial second emergence of *rufescentaria*, all the three of that date being in good condition.

200. *Endropiodes indictinaria* (Brem.) (1864).

Takao-San, 19 April 1925, 1 ♂; 21 May 1925, 4 ♂♂, 2 ♀♀; 14 July 1925, 1 ♂, 1 ♀; 2 May 1926, 2 ♂♂; 7 July 1926, 1 ♂. Sado I., 1–15 August 1925, 1 ♂, 1 ♀; 3–11 August 1926, 3 ♂♂, 3 ♀♀.

One ♂ (21 May) is ab. *abjecta* Butl. (1879), the two ♂♂ of 2 May transitional. The July and August specimens are small, evidently a second brood.

201. *Gonodontis arida* (Butl.) (1878).

“*Gonodontis obliquaria* Moor.” Matsumura, *Thous. Ins. Jap.*, supp. ii, t. xxiv, f. 18 (1910) (err. det.).

Nikko, 26 June 1925, 1 ♂, 5 ♀♀; October 1925, 1 ♂, 1 ♀; November 1925, 1 ♀; 2 May 1926, 1 ♂, 1 ♀. Takao-San, 13 April–9 June, 17 ♂♂, 6 ♀♀; 15 and 20 September, 2 ♂♂. Tokyo, 14 November 1925, 1 ♀; 1–15 April 1926, 1 ♂, 1 ♀.

202. *Gonodontis aurata* Prout (1915).

Nikko, 26 June 1925, 2 ♂♂; 2 May 1926, 1 ♂.

All three are more strongly irrorated and suffused than the type form.

203. *Colotois pennaria ussuriensis* O. B.-Haas (1927).

Nikko, 26 June 1925, 1 ♂ (erroneously dated ?); October 1925, 2 ♂♂; November 1925, 6 ♂♂. Tokyo, 20–30 November 1925, 1 ♂.

So far as I am aware, this species has not previously been recorded from Japan. When arranging the group in the Tring Museum a few years ago, I found, in addition to four males from Ussuri, one labelled 10 December 1887, Yokohama, all belonging to a race which was at that time without a name, but which was shortly afterwards named *pennaria ussuriensis* by Bang-Haas, based on three males from Sutschansk, S. Ussuri.

204. **Pachyligia dolosa** Butl. (1878).

Nikko, 2 May 1925, 3 ♂♂, 5 ♀♀; 26 June 1925, 17 ♂♂, 14 ♀♀. Takao-San, 19 April 1925, 1 ♀. Komaba, near Tokyo, 7 April 1925, 1 ♂. Tokyo and vicinity, April 1925, 4 ♂♂, 2 ♀♀; June 1925, 1 ♀; 30 March 1926, 1 ♂; 1-15 April 1926, 1 ♀.

Evidently an early species to appear. In view of the suspicion attaching to the data "Nikko 26.vi.25" (see Nos. 140, 142, 203), we cannot attach much importance to the second Nikko record above. It is perhaps legitimate to conjecture that a consignment from Nikko may have been received by Aigner on that date. On the other hand, I see no grounds for challenging the "Tokyo, June 1925" ♀, and it may possibly be that the emergence is spread over a long period, though the fact that the Tring Museum previously contained only one pair (undated) further suggests that *P. dolosa* is not on the wing at the time when collectors are the most active. The Wileman collections contains 3 ♂♂ from Tokyo dating from 18 to 24 March.

205. **Angerona prunaria turbata** Prout (1929).

Corea: Kikai Nojo, 19 August 1926, 1 ♂.

A small aberration and with the cell-mark of the hindwing less reduced than in true *p. turbata*, from Japan. Probably the Corean race will require naming separately.

206. **Angerona nigrisparsa** Butl. (1879).

Takao-San, 5 June-7 July, 28 ♂♂, 1 ♀; 15 September 1925, 2 ♂♂.

The September specimens are very small; otherwise the variation consists chiefly in details of the size and distribution of the black dots. A few examples show differentiable, more or less elongate, black cell-marks.

207. **Angerona grandinaria grandinaria** (Motsch.) (1860).

Nikko, October 1926, 1 ♀. Takao-San, 20 September 1925, 1 ♂.

Differs from *g. serrata* Bremer (1864, E. Siberia) in its less deep colouring and less heavy median shade.

As already pointed out (in Seitz's *Macrolep.* iv. 333), the subcostal venation is not that of true *Angerona*. From the genitalia, and even the superficial aspect of some of the forms, I have very little doubt that it will have to be transferred to *Ctenognophos*.

208. **Angerona (Bizia) aexaria** Walk. (1860).

Takao-San, 21 May-7 July, 33 ♂♂, 6 ♀♀; 15 September 1925, 1 ♀.

The September ♀ is small.

209. **Ourapteryx nivea** Butl. (1883).

"*Ourapteryx sam'ucaria* L. var. *percica* Mén." Matsumura, *Thous. Ins. Jap.*, supp. ii, t. xxiii, f. 12 (1910).

Nikko, October 1925, 1 ♀; November 1925, 4 ♂♂, 3 ♀♀. Takao-San, 21 May-14 July, 73 ♂♂, 15 ♀♀; 15 and 20 September, 6 ♂♂, 5 ♀♀. Tokyo, 4 July 1925, 1 ♀. Hachijoshima (Fatsizio I.), 23 July 1926, 3 ♂♂.

One Nikko ♀ (November) is rather small for that sex, the tail at R^3 of the hindwing shortened, the strigulation rather sparse, the lines of the forewing rather broad; perhaps a separate species—somewhat intermediate in shape towards *obtusicauda* Warr. The Tokyo ♀ is large. One Takao-San ♀ (20 September) is analogous to the above-noted Nikko in its shortened tail and broad lines, but these are more approximated, the strigulation and irroration are strong and so is the long dark cell-mark of the forewing. All the three Haehijoshima have the lines slender, the spots at the tail of the hindwing small.

There are, I believe, several unnamed species in this group. In any case, there is no authority for sinking the Japanese *nivea* to the sharper-winged, less pure white *persica* Ménétr. (1832) of Azerbaijan. Staudinger united all the white Palaearctic species of the *sambucaria* group as “var. *persica*.”

210. *Ourapteryx obtusicauda* (Warr.) (1894).

Takao-San, 21 May–14 July, 39 ♂♂, 3 ♀♀.

Warren described this as a *Tristrophis* and did not indicate the course of the line of the hindwing; it was therefore not only excusable but inevitable that Leeoh (*Ann. Mag. Nat. Hist.* (6) xix. 192) should sink it to his *subpunctaria* (*Ent. Supp.* 1891, p. 42) and that—Warren's type being mislaid at that time—I followed Leeoh's synonymy in Seitz *Macrolep.* iv. 336. A study of the original series shows, nevertheless, that Warren's species is that which was subsequently named *cretea* Swinh. (*Tr. Ent. Soc. Lond.* 1902, p. 601); and in the light of this knowledge Warren's description of the bands of the forewing as “broadish” becomes significant, though it remains possible that an aberration of *Tristrophis subpunctaria* with that character might be discovered. In *obtusicauda* they are oftenest (as in Warren's type) fairly broad, but occasionally—notably in a Takao-San ♂ of 5 June 1926—quite slender; in this specimen they do not reach the costal margin.

211. *Euctenurapteryx maculicaudaria* (Motsch.) (1860).

Nikko, October 1925, 1 ♂; November 1925, 1 ♂. Takao-San, 15 September 1925, 1 ♂; 20 September 1925, 1 ♂; 7 July 1926, 1 ♂. Tokyo, 5–30 November 1925, 1 ♀. Sado I., 1–15 August 1925, 3 ♀♀.

Both the Nikko specimens are small.

212. *Tristrophis veneris* (Butl.) (1878).

Takao-San, 21 June 1925, 1 ♂; 25 June 1925, 3 ♂♂, 1 ♀; 7 July 1926, 1 ♂, 4 ♀♀.

213. *Thinopteryx crocoptera striolata* Butl. (1883).

Takao-San, 9 June 1926, 1 ♂; Tokyo, 1–15 June 1926, 1 ♀.

214. *Thinopteryx delectans* (Butl.) (1878).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 1 ♂; 18 June 1925, 2 ♂♂; 14 July 1925, 1 ♂; 5 June 1926, 2 ♂♂; 9 June 1926, 2 ♂♂; 9 July 1926, 1 ♂.

215. *Plagodis dolabraria* (Linn.) (1767).

Takao-San, 21 May 1925, 1 ♂, Sado I., 1–15 August 1925, 5 ♂♂, 1 ♀.

216. **Scionomia mendica** (Butl.) (1879).

Nikko, November 1925, 2 ♂♂. Takao-San, 5 June 1926, 2 ♂♂; 9 June 1926, 1 ♀.

217. **Corymica arnearia** Walk. (1860).

Tsushima, 6 September 1925, 1 ♀.

The figure of this species in Matsumura (*Thous. Ins. Jap.*, supp. ii, t. xxv, f. 7, as *C. specularia* Moore) is large and too broad-winged, even for the ♀.

218. **Corymica pryeri** (Butl.) (1878).

Takao-San, 18 June 1925, 1 ♀.

219. **Heterolocha laminaria** f. **niphonica** (Butl.) (1878).

Nikko, 26 June 1925, 1 ♂.

I am unable to say whether the accepted synonymy is correct, as I am still unacquainted with Herrich-Schaeffer's *laminaria* (1847). If that should prove a different species, the present insect will stand as a synonym or race of *aristonaria* Walk. (1860), described from "N. China" [Shanghai].

220. **Heterolocha stulta** (Butl.) (1879).

Takao-San, 18 June 1925, 1 ♀.

Belongs to the greenest form (dark olive-buff), with the peculiar purple gloss which characterizes the species only weakly developed.

221. **Parepione grata** (Butl.) (1879).

Takao-San, 7 July 1926, 2 ♂♂.

Also, from the same locality, 21 May 1925, 1 ♂, 1 ♀ of the form. ? (gen. I ?) *lapidea* Butl. (1881).

222. " **Epione** " **magnaria** Wileman (1911).

Nikko, November 1925, 1 ♀.

On this species see Seitz, *Macrolep.* iv. 342. I have no further suggestion to offer as to its systematic position. The face is perhaps too smooth for association with the present group.

223. **Cepphis advenaria** Hb. (1798).

Takao-San, 21 May 1925, 2 ♂♂; 14 June 1925, 1 ♂; 5 June 1926, 2 ♂♂; 9 June 1926, 2 ♂♂.

224. **Spilopera debilis** (Butl.) (1878).

Nikko, 26 June 1925, 1 ♂. Takao-San, 14 June 1925, 1 ♀. Sado I., 1-15 August 1925, 1 ♀; 3-11 August 1926, 6 ♀♀.

225. **Spilopera gracilis** (Butl.) (1879).

Nikko, November 1925, 1 ♀. Hirayama, Nindo, 5 May 1926, 3 ♂♂. Takao-San, 2 May-14 July, 31 ♂♂, 13 ♀♀.

226. *Rhynchobapta flaviceps* (Butl.) (1881).

Takao-San, 25 June 1925, 1 ♂; 14 July 1925, 1 ♂, 3 ♀♀; 7 July 1926, 4 ♂♂. Japanese Alps, July 1926, 1 ♂.

227. *Rhynchobapta punctilinearia* (Leech) (1891).

Takao-San, 21 May 1925, 2 ♂♂, 1 ♀. Hirayama, Nindo, 5 May 1926, 1 ♂.

The Takao-San specimens are in poor condition. Leech only obtained the species on Kiushiu. Hitherto unrepresented in the Tring Museum.

228. *Nadagara prosigna* sp.n.

♂, 29 mm. Head mixed with oehreous. Thorax and abdomen concolorous with hindwing. Hindtibia not dilated.

Forewing slightly narrower than in typical *Nadagara*, termen rather strongly curved, oblique, not long; pale cinnamon-drab (with the lens appearing as a mixture of whitish-drab and cinnamon-drab), with scattered darker scales and with an ill-defined cinnamon-drab cloud in middle of distal area; cell-dot small; lines fine and slender, punctuated on the veins, indistinctly whitish-edged, both equally developed, arising from heavy blackish costal marks; these are oblique outward—especially the antemedian—and curve or bend at their junction with the lines, which are approximately parallel with termen, though the postmedian turns slightly more distad behind; terminal dark line thickening between the veins; fringe whitish, spotted with the ground-colour.—*Hindwing* with termen slightly waved, not erenulate; very slightly paler than forewing, at costa whitish; cell-dot weak; postmedian close beyond it, straightish, much as in *vigaia* Walk. and *inordinata* Walk.; terminal line and fringe as on forewing.

Underside coloured about as in pale *vigaia*, with distinct cell-marks and postmedian line, the former slightly elongate, the latter dotted on the veins, on the forewing shaped as above, on the hindwing curved parallel with termen; terminal line and fringe as above.

Takao-San, 21 May 1925, type ♂. A second ♂ in the Tring Museum from E. Wahr, received without label in a mixed collection, partly from Hong Kong, partly—doubtless including this specimen—from Japan.

The type is worn, but easily recognizable. The paratype is in better condition, but has lost the right hindwing. In it, the median area is only 3–4 mm. wide, in the type 4–5.5 mm. The species is distinguished from all other *Nadagara* by the costal spots and from the great majority by the less oblique, more proximal postmedian line of the forewing. The genus is new for Japan.

229. *Semiothisa proximaria* (Leech) (1897).

“*Semiothisa temeraria* Swinh.” Matsumura, *Thous. Ins. Jap.*, supp. ii, t. xxiv, f. 19 (1910) (nec *temeraria* Swinh. 1891).

Takao-San, 21 May 1925, 1 ♀; 14 June 1925, 1 ♀; 18 June 1925, 1 ♀; 2 June 1926, 1 ♂; 5 June 1926, 1 ♀; 9 June 1926, 1 ♀. Sado I., 1–15 August 1925, 1 ♀.

The Sado I. specimen is rather small, with the black markings outside the postmedian reduced, probably a local or seasonal modification.

I have noticed elsewhere (*Ann. S. Afr. Mus.* xix. 596) that according to the latest findings on the dates of Hübner's *Verzeichniss, Macaria* Curt., as employed in Seitz's *Macrolepidoptera*, must yield priority to *Semiothisa* Hb.

230. **Semiothisa defixaria** (Walk.) (1861).

Hirayama, Nindo, 5 May 1926, 2 ♂♂. Takao-San, 21 May–14 July and 15–20 September, 49 ♂♂, 12 ♀♀. Sado I., 1–15 August 1925, 1 ♀.

231. **Semiothisa proditaria** (Brem.) (1864).

Takao-San, 21 May 1925, 1 ♂; 14 June 1925, 1 ♂; 18 June 1925, 1 ♂; 21 June 1925, 1 ♂; 25 June 1925, 2 ♂♂; 14 July 1925, 1 ♂; 5 June 1926, 1 ♂; 9 June 1926, 1 ♂; 7 July 1926, 4 ♂♂. Hirayama, Nindo, 5 May 1926, 1 ♂.

Several species have evidently been confused under the name of *pluvia* *pluvia* Fab. (1798). The oldest applicable name for the present species seems to be *praditaria* Brem.

232. **Krananda (Trigonoptila) latimarginaria** Leech (1891).

Tokyo, "5–31" [!] November 1925, 1 ♂.

233. **Luxiaria amasa amasa** (Butl.) (1878).

Takao-San, 21 May 1925, 2 ♂♂ (worn); 21 June 1925, 1 ♂; 25 June 1925, 2 ♂♂; 14 July 1925, 5 ♂♂, 2 ♀♀; 15 September 1925, 1 ♀; 20 September 1925, 1 ♀; 2 May 1926, 1 ♂, 1 ♀; 9 June 1926, 2 ♂♂, 2 ♀♀; 7 July 1926, 8 ♂♂, 3 ♀♀.

Are there two broods? Or are two species confused under this name? The May specimens have rather narrow, rather sharp forewing and the shade between the postmedian and subterminal (which in the majority of the others, but not in all, forms a fairly continuous, dusky band) is represented only by two elongate blackish spots on the forewing, respectively from R^1 to R^3 and from M^2 to SM^2 .

The notice of *Luxiaria contigaria* (auett. nec Walk.) in Seitz (*Macrolep.* iv. 350) is practically worthless. Not having studied the group personally, I very rashly accepted the synonymy given by Hampson (*Faun. Ind., Moths*, iii. 195) and the chaotic series which consequently stood in the British Museum under the collective name; and though I observed that the Japanese *amasa*, which which alone I was concerned in the strictly Palaearctic fauna, had a distinctive facies, I was misled by the presence of its Indian race *fasciosa* Moore (1888) among the heterogeneous assemblage into pronouncing it (*amasa*) "not, however, everywhere constant." For elucidation of the group, the following references should be consulted: *Nov. Zool.* xxxii. 62–4; xxxv. 77. *Journ. Bomb. Nat. Hist. Soc.* xxxi. 792. *Bull. Hill Mus.* ii. 60, 61.

234. **Erannis leucophaearia dira** (Butl.) (1878).

Tokyo and vicinity, April 1925, 36 ♂♂.

Very variable in size and moderately so in markings. The Japanese form is a race, not a synonym (as previously quoted) of *leucophaearia* Schiff. (1775). Its correct status was incidentally given in *Nov. Zool.* xxxv. 143, but no differentiation was offered; the most stable distinction is in the posterior postmedian mark of the hindwing, which in *l. dira* is markedly oblique outward between $fold$ and SM^2 , angled on SM^2 , thence generally more or less thickened to abdominal margin.

235. **Erannis obliquaria** (Motsch.) (1860).*Hibernia obliquaria* Motsch., *Et. Ent.* ix. 37 (1860) (Japan).*Lozogramma bela* Butl., *Ann. Mag. Nat. Hist.* (5) i. 406 (1878) (Yokohama).

Tokyo, 11 April 1925, 3 ♂♂; 20–30 November 1925, 23 ♂♂; December 1925, 3 ♂♂.

Motschulsky's brief description points unmistakably to this common Japanese species. How the name can have been transferred to the *Alcis* (No. 255 *infra*) I am at a loss to imagine, although probably the words "antennis ♂ valdo pectinatis," referring to the exceptionally long and heavy *fascicles of cilia*, started a "false scent."

236. **Zamacra juglansiaria** Graeser (1889).

Tokyo, April 1925, 5 ♂♂; 1–15 April 1926, 1 ♂; June 1926, 1 ♂.

237. **Zamacra (Acanthocampa) excavata** Dyar (1905).

Tokyo, April 1925, 3 ♂♂; 1–15 April 1926, 4 ♂♂; 7 April–1 May 1926 (2 ♂♂); 16–30 April 1926, 3 ♂♂.

Both this and the preceding species are new to the Tring collection and so far as I know the *excavata* are the first examples to be received in this country. They are evidently near relatives and are at first glance confusingly alike, except for the sharply angular antemedian line of *excavata*; its postmedian is also more sinuous on both wings than that of *juglansiaria*, the tone rather less red, etc. They have in common a strong triangular crest on the vertex of the head. The short and hairy legs are in most of the specimens tucked in so that the tibial spurs are very difficult to investigate; but I have dissected one of each species and confirmed the presence of the proximal spurs in *excavata*—rather nearly approximated to the terminal and very unequal in length. With the specimens before me I am able to cancel the query with which the synonymy was given in Seitz (*Macrolep.* iv. 357, 358); *Acanthocampa okamotonis* Matsumura (*Thous. Ins. Jap.*, supp. ii, t. xxv, f. 21) is almost certainly a strongly banded ♂ of *juglansiaria*, though the artist has rounded the hindwing rather too much, while "*A. albofasciaria* Leech" Matsumura in err. (*ibid.*, f. 22) is unmistakably *excavata* Dyar, the obsolescence of the posterior part of the antemedian disguising its characteristic angulation.

238. **Megabiston plumosaria** (Leech) (1891).? *Boarmia theae* Matsumura, *Oyo Konchugaku* (ed. 2) 603, t. 27, f. 5 (1920) (Japan).

Tokyo, November 1925, 30 ♂♂.

239. **Wilemania nitobei** (Nitobe) (1907).

Tokyo, 20–30 November 1925, 2 ♂♂.

240. **Biston robustum** Butl. (1879).

Nikko, 26 June 1925, 22 ♂♂; 2 May 1926, 1 ♂. Kogane, 25 km. from Tokyo, 18 April 1926, 9 ♂♂. Tokyo and vicinity, April–18 May, 28 ♂♂, 2 ♀♀.

An extremely fine series. The Kogane specimens are on an average small and nearly all belong to ab. *albicollis* Warr. (1901), though in one or two the

white patagium is just tinged with cream-buff ; the pale parts of the wings are also generally whiter in this form than in the name-type, bringing about a superficial resemblance to *B. cognataria* (Guen., 1858). The Nikko and Tokyo series intergrade and three Nikko ♂♂ (June) are rather dark, the median area and apex of the forewing being little whiter than the bands.

241. ***Biston comitata* (Warr.) (1899).**

Nikko, July 1925, 1 ♂.

242. ***Buzura recursaria superans* (Butl.) (1878).**

Takao-San, 21 May-7 July, 44 ♂♂, 3 ♀♀.

Variable in size but scarcely so in other respects.

243. ***Erebomorpha consors* Butl. (1878).**

Takao-San, 21 May 1925, 1 ♂ ; 18 June 1925, 1 ♂.

244. ***Medasina nikkonis* (Butl.) (1881).**

Nikko, 26 June 1925, 11 ♂♂ ; 2 May 1926, 1 ♂, 1 ♀. Takao-San, 14 April 1925, 4 ♂♂ ; 2 May 1926, 1 ♀.

Not generally a common species ; previously only represented in the Tring Museum by one ♂ without exact data. There is possibly a mistake in labelling the last specimen recorded above, as a Nikko ♂ and ♀ bear the same date ; but this date occurs for both localities elsewhere in the collection. Fortunately the matter is here of no importance, as there are other examples to confirm the occurrence on Takao-San.

245. ***Hemerophila* (?) *amphidasyaria* (Oberth.) (1880).**

Nikko, 26 April 1925, 1 ♂ ; 26 June 1925, 1 ♂ ; 2 May 1926, 1 ♂.

As the ♂ has a fovea, this fine species is not a true *Hemerophila*. By Meyrick's key to the Palaearctic genera (*Tr. Ent. Soc. Lond.* 1892, pp. 99, 100) it would fall into *Cleorodes* Warr. (= *Cleora* Meyr. nec Curt.) or—if the antennal teeth of the last couple of joints are not treated as true pectinations—into *Alcis* Hb., *sens. lat.* (*Selidosema* part. Meyr., nec Hb.). In any case it has no near connection with *Cleorodes lichenaria* Schiff. (1775).

242. ***Hemerophila senilis* Butl. (1878).**

Takao-San, 21 May 1925, 12 ♂♂, 2 ♀♀ ; 2 May 1926, 12 ♀♀. Sado I., 1-15 August 1925, 1 ♂.

247. ***Hemerophila* (*Phthonandria*) *atrilineata* Butl. (1881).**

Takao-San, 5 June-14 July, 20 ♂♂, 2 ♀♀ ; 15-20 September, 2 ♂♂, 1 ♀.

Variable ; 4 ♂♂ are more or less strongly melanistic, 1 ♀ (20 September 1925) partly so, with very conspicuous zigzag subterminal line on forewing ; the second-brood specimens are, as usual, small, but so is also one ♂ dated 5 June 1926.

248. *Jankowskia athleta* Oberth. (1884).

Takao-San, 14 April–14 July, 15–20 September, 57 ♂♂; Tokyo, 4 July 1925, 1 ♂; Japanese Alps, July 1926, 1 ♂; Sado I., 6 ♂♂, 3–11 August 1926.

The second-brood specimens are small. The entire absence of the ♀ is noteworthy, though this sex seems to be always very rare in the species; probably it is not attracted by light.

249. *Phthonosema tendinosaria* (Brem.) (1864).

Takao-San, 21 May–7 July, 38 ♂♂. Tamagawa, W. of Tokyo, 25 June 1926, 1 ♂. Sado I., August, 24 ♂♂.

Variable especially in the breadth of the median area of the forewing; in one (5 June 1926) the lines are closely approximated; one (7 July 1926) is remarkably asymmetrical, the right forewing being normal, the left having the postmedian running inward along and behind M^2 , coalescing slightly with antemedian, then vertical or slightly oblique outward to hindmargin.

In this species again the absence of ♀♀ points to a difference of habit in the two sexes. Compare also *Megabiston plumbosaria*, of which no ♀♀ were obtained, and *Biston robustum*, with only two ♀♀ against 60 ♂♂. In all these three species the ♀ is well known and was fairly well represented in the Tring Museum.

250. *Cleora rimososa* (Butl.) (1879).

Nikko, October–November 1925, 13 ♂♂, 7 ♀♀. Takao-San, 21 May–14 July, 25 ♂♂, 3 ♀♀; 15 September 1925, 1 ♂; 20 September 1925, 7 ♂♂, 1 ♀. Tokyo, October 1925, 1 ♂.

Very constant, though the second-brood specimens are on an average slightly smaller than the first-brood.

In Seitz (*Macrolep.* iv, 365) it was stated that this is "in . . . structure a normal *Cleora*," i.e. in the very comprehensive sense in which that name was employed prior to the advent of McDunnough's "Studies in North American Cleorini" (1920); but even so, the statement was not quite correct, as it was overlooked that it has no true fovea. The abdomen is long-sealed beneath, almost hairy, and I suspect it may belong somewhere between *Hemerophila* and *Medasina*, but I have not yet proceeded far enough with the taxonomy of the group to propose a transference; SC^1 arises from near the base of SC^2 and nearly always anastomoses well with C .

251. *Cleora charon* (Butl.) (1878).

Takao-San, 21 May–14 July, 40 ♂♂, 40 ♀♀. Tokyo, 15 May–4 July, 11 ♂♂, 3 ♀♀; 5 October 1925, 1 ♂.

This very distinct species is likewise probably nearer to *Hemerophila* than to *Cleora* but seems likely to demand a separate genus; see Seitz's *Macrolep.* iv, 365. Apart from the wide antennal difference, it is structurally distinct from *rimosa* in the smooth venter and non-dilated hindtibia of the ♂.

252. *Cleora cinctaria insolita* (Butl.) (1878).

Takao-San, 21 May 1925, 1 ♂; 18 June 1925, 1 ♀.

In a recent revision of a section of this genus I have called attention (*Bull. Hill Mus.* iii. (3) 181) to a very slight, perhaps not constant, morphological

difference between this form and its European representative *c. cinctaria* Schiff. (1775). I have since found vestiges of the basal abdominal spine in two or three European males and in any case I doubt whether it is any longer functional even in the Japanese, though their hindtibia does appear on an average somewhat more heavily dilated, therefore presumably enclosing a stronger hair-pencil.

253. **Cleora leucophaea** (Butl.) (1878).

Nikko, 26 June 1925, 8 ♂♂; 2 May 1926, 1 ♂. Takao-San, 1 April-1 May, 10 ♂♂, 5 ♀♀.

254. **Alcis angulifera** (Butl.) (1878).

Nikko, October-November 1925, 11 ♂♂, 31 ♀♀. Takao-San, 21 May 25 June, 106 ♂♂, 13 ♀♀.

All the Nikko ♂♂ and many of the November ♀♀ are badly worn. One October ♀, extremely worn, looks whitish and presents a very different aspect, superficially recalling *jubata* Thnb., but I think belongs here; it is an interesting sport in venation, having C of the forewing forked, its longer arm connected, on the left wing only, with SC¹.

255. **Alcis lomozemia** nom.n.

“*Boarmia obliquaria* Motsch.” Leech, *Ann. Mag. Nat. Hist.* (6) xix. 415 (1897); Prout in Seitz, *Macrolep.* iv. 369, t. 20 g (1915) (err. det.) (Japan).

Nikko, 26 June 1925, 4 ♂♂, 2 ♀♀; 2 May 1926, 4 ♂♂. Takao-San, 14 June 1925, 1 ♀. Tokyo, 3 April 1925, 1 ♂.

Variable. The ♀♀, being shorter- and broader-winged, have the antemedian line of the forewing less produced anteriorly than the ♂♂. One Nikko ♂ (2 May) is very interesting, being so aberrant that I at first took it for a new species and even now do not feel certain that it may not prove to be so, though I find a connecting link in the Tokyo ♂. Lighter and apparently somewhat more delicate-winged, the texture and in some measure the markings superficially suggesting *Erannis leucophaearia* (Schiff.); forewing with SC¹ not anastomosing with C, postmedian line with the anterior angle somewhat accentuated; hindwing whitish. It is perhaps more than a coincidence that in the Tokyo ♂, which also has the hindwing pale, though less extreme, SC¹ likewise escapes the usual anastomosis of *obliquaria*.

256. **Alcis grisea** (Butl.) (1878).

Takao-San, 5 June-14 July, 18 ♂♂, 9 ♀♀; 15-20 September 1925, 3 ♂♂, 3 ♀♀. Tokyo, 16-31 May 1926, 1 ♂.

The September specimens are somewhat smaller.

257. **Alcis simpliciaria** (Leech) (1897).

Takao-San, 26 May-7 July, 21 ♂♂, 14 ♀♀; 15 September 1925, 1 ♀. ? Nikko, November 1925, 1 ♀ (wasted).

The September ♀ is small and dark.

258. *Alcis ribeata* (Clerck) (1759).

Nikko, October 1925, 1 ♀. Ikaho, Central Hondo, 25 July 1926, 1 ♀. Takao-San, 18 June 1925, 2 ♂♂; 20 September 1925, 1 ♀; 5 June 1926, 1 ♂; 9 June 1926, 1 ♂. 3 ♀♀.

259. *Alcis picata* (Butl.) (1881).

Nikko, October 1925, 1 ♂.

260. *Alcis pryeraria* (Leech) (1897).

Takao-San, 14 July 1925, 1 ♀; 30 September 1925, 1 ♂; 7 July 1926, 1 ♂. The second-brood specimen is very small.

Of this species only the type was known when vol. iv of Seitz was prepared, and it remains scarce in Japan, whence Mr. Joicey received a few specimens labelled *nigroguttata* Mats. [MS.]. Matsumura subsequently (*Journ. Coll. Agric. Sapporo*, xv. 179) made the correct determination and reported it "not rare in Saghalien." In all the specimens known to me SC¹ and SC² are free, and I suspect an error of observation on Matsumura's part when he gives these as long-stalked.

261. *Alcis melanonota* sp.n.

♂. 28 mm. Closely similar to *A. jubata* (Thnb., 1788), possibly a race Thorax with a stronger, entirely black, posterior crest, recalling "*Cleora aagostigma* Prout (1927). Hindtibia about 5 mm. long, only very weakly dark-spotted on the outer side, the pencil strong, tarsus about 2 mm.

Rather more greyish white than typical *jubata*.—Forewing with SC¹ and SC² separate (probably variable as in *jubata*); costal spots less strong than in *jubata*, the subterminal one almost obsolete; postmedian line more proximal than in *jubata*, little outbent behind SC¹; between it and subterminal a strong black spot at R²-M¹; distal area otherwise very weakly dark-shaded; fringe weakly clouded.—Hindwing with cell-dot small.

Japanese Alps, July 1926, the type only.

262. *Boarmia roboraria arguta* Butl. (1879).

Takao-San, 21 May 1925, 1 ♂; 18 June 1925, 6 ♂♂; 25 June 1925, 4 ♂♂; 5 June 1926, 2 ♂♂; 9 June 1926, 2 ♂♂; 7 July 1926, 2 ♂♂. Tokyo, 16-31 May 1926, 1 ♂.

263. *Boarmia lunifera* Butl. (1878).

Nikko, October and November 1925, 2 ♂♂. Takao-San, 18 June 1925, 3 ♂♂; 20 September 1925, 1 ♂, 2 ♀♀; 7 July 1926, 7 ♂♂. Tokyo, 4 July 1925, 1 ♀.

The second-brood specimens are smaller.

264. *Boarmia invenustaria* (Leech) (1897).

Takao-San, 21 May-14 July, 45 ♂♂, 2 ♀♀. Tokyo, 4 July 1925, 1 ♂. Sado I., August, 23 ♂♂, 2 ♀♀.

A dark form is not infrequent on Takao-San.

265. **Boarmia (Serraca) conferenda** Butl. (1878).

Hirayama, Nindo, 5 May 1926, 16 ♂♂. Takao-San, 2 May–14 July, 91 ♂♂, 24 ♀♀. Tokyo, April 1925, 1 ♂; 18 May 1925, 2 ♂♂, 1 ♀; 1–15 June 1925, 1 ♂ (very worn). Sado I., spring 1926, 1 ♂; August, 14 ♂♂, 12 ♀♀.

A few examples are melanistic, almost as in *B. punctinalis* Seop. ab. *humperti* Humpert. The Sado I. specimens are mostly in poor condition, but not so bad as would have been expected if they had been belated first brood.

266. **Boarmia definita** Butl. (1881).

Takao-San, 5 June–14 July, 22 ♂♂, 13 ♀♀; 15–20 September 1925, 11 ♂♂, 3 ♀♀.

267. **Boarmia sordida** (Butl.) (1878).

Takao-San, 18 June 1925, 1 ♀; 21 June 1925, 1 ♀; 5 June 1926, 1 ♀.

268. **Boarmia (Calicha) ornataria** Leech (1891).

Nikko, 26 May 1925, 1 ♂. Takao-San, 2 June 1926, 1 ♂; 5 June 1926, 1 ♂. Sado I., 3–11 August 1926, 1 ♀.

Dr. Wehrli has recently shown (*J.B. Mart. Staatsmus. Minussinsk.* vi. (1) 26, 1929) that this is a very close relative, or probably race, of the rare *B. nooraria* Brem. (1864), which was unrecognizably figured by its author and not very fully described, in consequence of which it was conjecturally placed by me (Seitz's *Macrolep.* iv. 368) in a position which proves erroneous. As some appreciable—though perhaps inconstant—differences were found in the genitalia, the build of *nooraria* (= *ornataria nigrisignata* Wehrli, 1927) is somewhat less robust and the range of the two shows some complications, I have not cited Leech's form as *nooraria ornataria* without further information.

269. **Ophthalmodes irrorataria** (Brem. & Grey) (1853).

Takao-San, 21 May 1925, 3 ♂♂; 18 June 1925, 4 ♂♂, 2 ♀♀; 5 June 1926, 1 ♂; 7 July 1926, 1 ♂.

270. **Ophthalmodes albosignaria** (Brem. & Grey) (1853)

Takao-San, 14 June 1925, 5 ♂♂; 18 June 1925, 6 ♂♂; 21 June 1925, 1 ♂; 25 June 1925, 4 ♂♂; 5 June 1926, 1 ♂.

271. **Ascotis selenaria cretacea** (Butl.) (1879).

Nikko, 26 June 1925, 1 ♂. Hirayama, Nindo, 5 May 1926, 1 ♂. Takao-San, 21 May–14 July, 29 ♂♂, 1 ♀. Kogane, 25 km. from Tokyo, 18 April 1926, 1 ♂. Tokyo, June 1925, 1 ♂; 10 September 1925, 1 ♀; 1–3 October 1925, 1 ♂; 16–31 May 1926, 6 ♂♂.

On the whole not very variable. Only two or three of the ♂♂ and one ♀ have the irroration slight enough (except perhaps in the proximal area of the hindwing) to leave the general impression of a whitish insect. One ♂ (Takao-San, 14 July 1925) has it exceptionally dense, producing on the hindwing a strikingly sharp contrast between the whitish proximal area and the rest of the

wing, the median line accompanied distally by a blackish shade. A Tokyo ♂ (May 1926) has the brown bands exceptionally clear, including an unusually proximal median on the forewing—close to antemedian at costa, midway between ante- and postmedian at hindmargin.

272. *Cusiala stipitaria* (Oberth.) (1880).

Nikko, October 1925, 1 ♀. Takao-San, 21 May 1925, 6 ♂♂; 14 June 1925, 1 ♂; 18 June 1925, 1 ♂, 1 ♀; 25 June 1925, 2 ♂♂; 5 June 1926, 6 ♂♂; 9 June 1926, 1 ♂; 7 July 1926, 2 ♂♂.

Variable in the density of the dark irroration; one ♂ (25 June) rather outstandingly dark.

273. *Ectropis bistortata* (Goeze) (1781).

Nikko, 26 June 1925, 6 ♂♂, 26 ♀♀; 2 May 1926, 1 ♂, 2 ♀♀. Sado I., 1-15 August 1925, 1 ♂; 3-11 August 1926, 2 ♂♂, 1 ♀. Takao-San, 19 April 1925, 1 ♀; 21 May 1925, 5 ♂♂; 21 June 1925, 4 ♂♂, 1 ♀; 25 June 1925, 9 ♂♂; 14 July 1925, 6 ♂♂, 1 ♀; 2 May 1926, 4 ♂♂; 5 June 1926, 1 ♂; 9 June 1926, 1 ♂; 7 July 1926, 31 ♂♂, 2 ♀♀.

The Nikko series is not extraordinarily variable. The Sado I. specimens are similar to the Nikko, rather small, probably a second or third generation. The Takao-San 66 are variable, possibly two species mixed, as the demarcation on certain dates is rather clear; a large, browner, more heavily marked form which might, but for some of the dates, have been assumed to be gen. 1, was taken on 19 April (♀), 21 May (3 ♂♂), 25 June (1 ♂), 14 July (2 ♂♂, ? 1 ♀) in 1925, on 2 May (3 ♂♂), 5 June (1 ♂) and 9 June (1 ♂) in 1926; similar, but rather smaller, forms occurred on 7 July 1926, only two or three being very pronounced but several others suggesting intergradations to the smoother, finer-marked forms.

274. *Ectropis aignerii* sp.n.

♂, 44-47 mm.; ♀, 48-52 mm. Head and body eoneolorous with wings. Face indefinitely darkened in upper part. Patagia somewhat darkened at tips. Antenna of ♂ with the eliation a trifle shorter than in *bistortata* and its closest allies (scarcely $1\frac{1}{2}$). Hindtibia of ♂ without hair-pencil. Abdomen with the paired dark dorsal spots present, at least anteriorly; ovipositor in ♀ long.

Forewing rather elongate, the termen appreciably longer and more oblique than in *bistortata*; stalk of SC^1-2 unusually well separate at its origin from that of SC^3-5 ; in one ♀ SC^1-2 coincident, as in most ♀♀ of the group, in the other ♀ stalked; rather blurred and glossy (but none perfectly fresh), with a peculiar fleshy-brown tone, nearest to that of *grisescens* Warr. (1894) but slightly whiter, at least in the ♀♀; markings as in the allies; ante- and postmedian lines not strong, with little or no black admixture, the fleshy-brown accompanying bands well developed, a median line of the same colour also in general well developed; a darkening of the postmedian band at R^3-M^1 recalling that of *excellens* Butl., except in its less black colour; subterminal well dentate, its accompanying shades rather variable, in general fairly equal throughout.—*Hindwing* rather elongate; eoneolorous with forewing or proximally a little less suffused; a cell-dot often indicated but never strong; lines and bands (except antemedian) as on forewing, only the postmedian band without darkening at R^3-M^1 .

Underside with faint indications of the principal markings of upper.

Takao-San, 21 May 1925, 7 ♂♂, 1 ♀; 14 June 1925, 1 ♂ (type); 18 June 1925, 2 ♂♂; 20 September 1925, 1 ♂; 2 June 1926, 1 ♀; 5 June 1926, 1 ♂.

From *excellens* Butl. and *obliqua* Warr., the only Japanese species of the group which have SC^{1-2} arising from the cell, *aigneri* is easily distinguished by the absence of the ♂ hindtibial pencil; quite different from the former in colour, from the latter in its large size, more sinuate postmedian and well developed spot beyond it.

275. ***Ectropis obliqua* Warr. (1894).**

Nikko, 26 June 1925, 2 ♂♂; October 1925, 1 ♂. Takao-San, 14 April 1925, 1 ♂; 7 July 1926, 4 ♂♂. Tokyo, 18 May 1925, 1 ♂.

This little-known species was founded by Warren (Nov. Zool. i. 434) on a single aberrant ♀ from Hakodate, with exceptionally strong and complete band outside the postmedian line and the blackish dashes on R^2 and M^1 obsolete. As it was treated as an aberration of *grisescens* Warr. (*loc. cit.*, Ningpo), the name had no assured status under the Code, although the type label gives *Ectropis grisescens* "var." *obliqua* and the different localities might indicate the employment of that much-abused term in the Staudingerian sense. In Seitz (*Macrolep.* iv. 377) I gave it the rank of a subspecies. But on closer study I find that it differs structurally in two particulars: (1) presence of ♂ hindtibial hair-pencil and short abdominal spine; (2) origin of SC^{1-2} , which in the ♂ is always (in the ♀ often) from the cell, well proximal to SC^{3-5} , whereas in *grisescens* the two stalks are well stalked together. The species is as variable as its congeners, but generally recognizable, apart from its structural characters, by the small size (♂, 26-36 mm.; ♀, 31-41 mm.) and relatively rather broad forewing and by the postmedian line, which is more as in *consonaria* Hb. than in the immediate allies, on the forewing straightish (or only with a weak inward curve in the posterior part) and about parallel with the termen. The underside is in general less blurred or blotched than in *bistortata*, often with well-developed postmedian line and cell-dots, but both species vary beneath.

The three Nikko examples are rather dark. The Takao-San specimens collected in July are a little smaller, paler and less brownish than the first-brood specimens, but at least as strongly marked.

276. ***Ectropis excellens* (Butl.) (1884).**

Takao-San, 21 May-7 July, 70 ♂♂, 2 ♀♀. Hachijoshima (Fatsizio I.), 23 July 1926, 1 ♂.

In structure, *E. excellens* approaches *obliqua* Warr., though the tibial pencil and the spine may be a little stronger and the origin of SC^{1-2} of the forewing is on an average more distal; normally it may be regarded as connate with SC^{3-5} in the ♂ (but there is some variation in both directions from this mean), stalked (though often extremely shortly) in the ♀. The specimen from Hachijoshima is small (38 mm.), rather ochreous-tinged and strongly marked and may represent a local race. In any case, there seems to be some geographical, as well as individual, variation in this species. Specimens from Yezo (*loc. typ.*) are whitish, those from Kiushiu much brownier, with a tinge of vinaceous buff; the fine series from Takao-San is intermediate, or in some specimens more greyish.

Additional localities to those given in Seitz are Ningpo (J. H. Leech) and the Riu-kuu Islands (two of each sex in Mus. Tring, approximately of the Kiushiu form).

277. **Ectropis costipunctaria** (Leech) (1891).

Takao-San, 5 June–14 July, 27 ♂♂, 17 ♀♀; 15 September 1925, 1 ♂.

Slightly variable, but none agree with *opertaria* Leech (see Seitz, *Macrolep.* iv. 378).

278. **Ectropis petrosa** (Butl.) (1879).

Takao-San, 21 May 1925, 1 ♂ (worn); 14 June 1925, 1 ♂; 18 June 1925, 1 ♂; 25 June 1925, 1 ♀; 14 July 1925, 4 ♂♂, 3 ♀♀; 7 July 1926, 2 ♂♂, 1 ♀. Sado I., 3–11 August 1926, 1 ♂.

Probably a development of the Indian genus *Racotis*. The series shows a similar, though less extreme, variability on the underside, as regards the development of broad dark borders, to that obtaining in the Khasi *R. boarmiaria* (Guen., 1858) and its ab. *obliterata* Warr. (1894). SC^1 of the forewing, though similarly short-stalked with SC^2 , anastomoses shortly with C, but this is rarely of generic value in the *Boarmia* group.

279. **Ectropis sinearia noctivolans** (Butl.) (1881).

Takao-San, 21 May 1925, 1 ♂ (worn); 14 June 1925, 3 ♂♂; 21 June 1925, 1 ♂; 25 June 1925, 1 ♂; 5 June 1926, 2 ♂♂; 7 July 1926, 1 ♂, 2 ♀♀ (worn).

280. **Ectropis** sp.

Sado I., 1 ♀, 3–11 August 1926.

Very worn; closely similar to the doubtful *E. ictractabilis* (Walk., 1864) recorded by me from Upper Burma in *Journ. Bomb. Nat. Hist. Soc.* xxxi. 937, but with the cells slightly longer, postmedian line of hindwing more incurved in the middle. I cannot reconcile it with any species known from Japan.

281. **Aethalura ignobilis** (Butl.) (1878).

Takao-San, 14 July 1925, 2 ♂♂; 7 July 1926, 1 ♀. Near Tokyo, April 1925, 1 ♂. Hirayama, Nindo, 5 May 1926, 9 ♂♂, 1 ♀.

282. **Aethalura nanaria** (Stgr.) (1897).

Takao-San, 21 May 1925, 6 ♂♂; 14 June 1925, 1 ♂; 18 June 1925, 4 ♂♂, 1 ♀; 5 June 1926, 1 ♀; 9 June 1926, 3 ♂♂; 7 July 1926, 1 ♂, 1 ♀.

Smaller than the preceding species (22–28 mm. as against 28–35 mm. for *ignobilis*), ♂ antenna with fascicles of cilia rather less heavy, hindtibia of ♂ without hair-pencil (therefore not quite a typical *Aethalura* according to the diagnosis of McDunnough, *Studies N. Amer. Cleorini*, p. 36); forewing with antemedian line generally less irregular, median rarely, if ever, obsolescent posteriorly, postmedian rather more bent at radials; hindwing with cell-dot stronger, closely followed by the postmedian, which is costally contiguous to the posterior end of the median of the forewing; umeus more pointed, valve perhaps less long. Emergence apparently mainly between the two broods of *ignobilis*, though lasting to the beginning of July.

This species has been entirely overlooked. It is manifestly the one which Staudinger informs us (*Iris*, x. 61) he distributed under the name of *Boarmia punctularia* var. *nanaria* but which on publication he confused with *ignobilis*. It has therefore never been adequately described, though the indication "kleiner und etwas dunkler als deutsche *punctularia*," together with the locality "Amur" [-gebiet] is sufficient to validate the name; I select as type the very small (20 mm., by Staudinger's measurement) ♂ from Vladivostok, 21 May. Mr. J. J. Joicey has acquired, in the Kardakoff collection, a ♂ from the Vladivostok district, 24 May 1927, of exactly the same size as this lectotype. The Tring Museum already possessed one ♂ from Tokyo, December 1890, and six pairs from "Japan," undated. The Wileman and British Museum collections also had it mixed with *ignobilis*, the former containing 1 ♀ from Oyama, prov. Sagami, the latter a short series from Gifu.

283. **Hirasa paupera** (Butl.) (1881).

Takao-San, 14 June 1925, 1 ♂; 18 June 1925, 1 ♂, 1 ♀; 15 September 1925, 1 ♂, 3 ♀♀; 5 June 1926, 1 ♂, 1 ♀; 9 June 1926, 1 ♂, 3 ♀♀.

The second-brood ♂ is rather small, but not the ♀♀. There is an almost constant sexual dimorphism in the venation; the 5 ♂♂ have SC¹ of the forewing approaching SC² but without anastomosing, while anastomosis occurs in all the ♀♀ but one (5 June), in which the veins in question are appressed for some distance but without any fusion (*cf.* Sterneck, *Iris*, xlvi. 225).

284. **Elphos insueta** Butl. (1878).

Nikko, October 1925, 1 ♂.

285. **Xandrames dholaria sericea** Butl. (1881).

Sado I., 1-15 August 1925, 10 ♂♂; 3-11 August 1926, 3 ♂♂.

286. **Xandrames latiferaria** (Walk.) (1860).

Sado I., 1-15 August 1925, 3 ♂♂, 1 ♀.

A rather small, rather dark form which, if it proves constant on the island, will be worthy of a separate name. The white, brown-strigulated band of the forewing is more or less narrowed, the white line of the hindwing also narrowed, in extreme cases almost obsolete. The female and one of the males, however, are much less extreme than the other two.

287. **Dulioptile agitata** (Butl.) (1878).

Takao-San, 15 September 1925, 1 ♂.

The curious coincidence of the capture of one specimen of each in the same locality, and within a few days of one another, led me to wonder whether this specimen, which is rather worn, could possibly be an extraordinarily *agitata*-like, dwarfed aberration of the following species. A careful examination, however, shows it to be a perfectly normal *agitata*, or only aberrant in the slightly enlarged cell-spot of the hindwing.

288. **Duliophyle majuscularia** (Leech) (1897).

Takao-San, 20 September 1925, 1 ♀.

This is not, as was suggested by Warren and in Seitz (*Macrolep.* iv. 381), a form of *agitata* Butl., for the ♀ antenna is pectinate, which is not the case in that species. The real distinction between *Xandrames* and *Duliophyle* is not in the antennae but in the venation (*cf.* Sterneck, *Iris*, xlii. 228).

289. **Itame fulvaria sordida** (Butl.) (1881).

Asama, July 1923, 2 ♂♂.

290. **Chiasmia lutearia** (Leech) (1891).

Takao-San, 15 September 1926, 1 ♂.

Smaller and less heavily marked than the originals from Oiawake, no doubt a second brood. The Wileman collection contains equally small specimens from Yoshino, Yamato, August and September.

291. **Tephrina vapulata** (Butl.) (1879).

Tokyo, 1-15 June 1926, 1 ♂.

292. **Aspitates formosaria** Eversm. (1837).

Takao-San, 14 June 1925, 1 ♂; 14 July 1925, 1 ♂; 7 July 1926, 1 ♂.
Tokyo, June 1925, 1 ♂.

293. **Compsoptera simplex** (Butl.) (1878).

Nikko, May and June, 10 ♂♂, 4 ♀♀. Takao-San, 14 April 1925, 5 ♂♂;
19 April 1925, 2 ♂♂, 1 ♀. Tokyo, 3 June 1925, 1 ♀.

Planociampa gen.n.

Crown slightly tufted in front. Frons protuberant, with a (typically horseshoe-shaped) cornaceous ridge in front and projecting tuft of hair at side. Palpus short, hairy. Tongue developed. Antenna of ♂ bipectinate almost to the apex; of ♀ simple. Pectus densely hairy. Femora hairy. Hindtibia with all spurs.—Forewing rather narrow; cell long (about $\frac{2}{3}$); SC^1 from cell, connected by bar with C , SC^2 from stalk of SC^{3-5} , M^1 separate. Hindwing in ♂ ample, in ♀ narrow, in both sexes with abdominal region relatively ample; cell over $\frac{1}{2}$ (usually $\frac{2}{3}$); C approximated to SC to considerably beyond middle of cell, SC^2 variably stalked (very rarely about connate) with R^1 , R^2 vestigial, M^1 well separate, SM^1 rather long.

Type of the genus: *Planociampa modesta* (Butl.) = *Pachyligia modesta* Butl. (1878).

In Seitz (*Macrolep.* iv. 413) I conserved the impossible taxonomic position assigned to Butler's *modesta* in the British Museum. Apart from the differences noted (*loc. cit.*), the frons is totally dissimilar and the suggestion that it probably belongs to the archaic Australian group of which *Chlenias* is perhaps the best-known genus seems warranted. I find, however, that it does not fit well into any described genus. From *Ciampa* Walk. (= *Ceratucha* Turn., *Proc. Linn.*

Soc. N. Sth. Wales, xliv. 399), which, as Turner says, "differs from *Chlenias* only by the horny frontal process," *Planociampa* deviates not only in the subcostal venation but also very essentially in the formation of the frontal process. The venation is as given by Turner for *Fisera*, but that also has different antenna and is also dissimilar in shape, coloration and general habitus, so that any near affinity seems very improbable.

294. **Planociampa modesta** (Butl.) (1878).

Nikko, 26 June 1925, 2 ♂♂. Komato, near Tokyo, 7 April 1925, 1 ♂. Takao-San, 14 April 1925, 4 ♂♂; 19 April 1925, 1 ♂. Tokyo, April 1925, 24 ♂♂, 5 ♀♀; 1-15 April 1926, 2 ♂♂; 16-30 April 1926, 1 ♂; 30 June 1926, 1 ♂.

Very variable in size, all the ♀♀ and a few ♂♂—especially the last two—very small. One Tokyo ♂ (April 1925) is a pretty aberration, the forewing having the proximal area and the region between the postmedian and the subterminal suffused with rose-colour.

295. **Planociampa antipala** sp.n.

♂, 40-44 mm.; ♀, 50 mm. Differs from *modesta* as follows:

Frontal prominence less long, more densely clothed, the corneous ridge more concealed, more open below. Antenna ochreous. Hindwing in ♂ perhaps rather less elongate tornally, its line feeble, less zigzag than in *modesta*. General coloration more whitish, the hindwing white. ♀ larger than the ♂, less narrow-winged than that of *modesta*.

Nikko, 26 June 1925, 5 ♂♂, including the type. Takao-San, 14 April 1925, 1 ♂. Tokyo, 1-15 April 1926, 1 ♀.